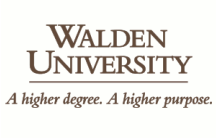

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Understanding Financial Value of Cloud-Based Business Applications: A Phenomenological Study

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This is to certify that the doctoral dissertation by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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2017

Abstract

Understanding Financial Value of Cloud-Based Business Applications:

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by

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

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Abstract

An understanding of opportunities and challenges in cloud computing is needed to better manage technology costs and create financial value. The purposes of this transcendental phenomenological study were to understand the lived experiences of minority business owners who operated business applications in the cloud and to explore how these experiences created financial value for businesses despite security challenges. Historically, minority business owners have experienced high rates of business failures and could benefit from information to help them manage business costs in order to position their businesses to grow and succeed. Modigliani-Miller's theorem on capital structure and Brealey and Young's concept of financial leverage were the conceptual frameworks that grounded this study. Data consisted of observational field notes and 15 individual semistructured interviews with open-ended questions. I used the *in vivo* and pattern coding approaches to analyze the data for emerging themes that addressed the research questions. The findings were that drivers of positive cloud-based experiences, such as easy access, ease of use, flexibility, and timesavings, created financial value for small business owners. In addition, the findings confirmed that opportunities in the cloud such as cost savings, efficiency, and ease of collaboration outweighed security challenges. Finally, the results indicated that cost-effective approaches such as the subscription model for acquiring technology created financial value for businesses. The findings of this study can be used by business owners, especially minority small business owners, to decide whether to move operations to the cloud to create financial value for their businesses.

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Dedication

To my wife for her unconditional love and support, and to our lovely daughters, Irene, Vanessa, and Rachel.

Acknowledgments

I am grateful to the Almighty God for His grace that made it possible for me to complete my studies. I am profoundly thankful to Dr. Godwin Igein and Dr. Walter McCollum, my mentors and research committee chair and member, respectively, for their support and guidance through my doctoral journey. They shaped and groomed my scholarly growth while challenging my thoughts along the way. They nurtured me to become the independent and scholarly thinker that I have become today. I am grateful for the valuable contributions that they made to develop my work to the highest level possible. I am also thankful to Dr. Mohammad Sharifzadeh for serving on my research committee as the University Research Reviewer (URR). I owe a depth of gratitude to the participants in this study for making themselves available and freely sharing their experiences with me as they operated business applications in the cloud. I am indebted to Green & Healthy Homes Initiative, Inc. (GHHI), my current employer, for providing me with the platform in my role as Controller to implement Procurify, a cloud-based business application, so I could see firsthand the financial value that improved business processes and efficiencies can create. In particular, I am grateful to the President and CEO of GHHI, Ruth Ann Norton, who challenged me to pursue financial excellence at the corporate level. To my wife, I appreciate your love, support, understanding, endurance, and sharing in my anxieties and celebrating my milestones on this doctoral journey. And to my daughters, Irene, Vanessa, and Rachel, you were my inspiration!

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Chapter 1: Introduction to the Study

The financial crisis of 2008 has challenged businesses to remain competitive by operating efficiently through cost-reduction strategies. The financial crisis motivated business leaders to explore cost saving measures through cloud computing (Babu, Babu, & Sekhar, 2013; Chan, 2013; Howell, 2015; Şiclovan 2013) in order to better manage technology costs (Hassan et al., 2014) and improve profitability (Cătinean & Cândea, 2013). Şiclovan (2013) noted that cloud computing was capable of controlling technology costs because cloud resources could be shared by businesses. The sharing of cloud resources reduces costs and positions businesses to remain competitive during financial crises (Şiclovan, 2013, p. 169).

According to Rai et al. (2013), cloud computing provides a means for acquiring computing services without requiring a deep understanding of the underlying technology that supports the service. Cloud computing delivers services for consumers and businesses in a simplified way using a subscription-based model of paying for computing resources. Rai et al. (2013) have noted that it provides scale and differentiated quality of service to support innovation and decision making. Cloud computing can be defined as a style of computing that enables Internet applications to be delivered as a service to external customers using Internet technologies (Rai et al. (2013). In simple terms, cloud computing makes technology available to business owners who otherwise do not have the sophistication and capability to operate the technologies on their own. It makes technology more available and accessible to consumers.

Businesses incur technology costs in one of two ways: through a capital expenditure model (CAPEX) or through an operating expenditure model (OPEX). In the CAPEX model, technology costs are funded upfront when business owners purchase technology, and the value of those assets depreciates over time. This model requires upfront investments of large amounts of cash. The CAPEX model can result in cash flow challenges for businesses that have tight cash flows because the large initial commitment of cash could affect the availability of cash to meet operational needs. In the OPEX model, on the other hand, technology costs are funded on a periodic subscription basis and do not require a large upfront commitment of cash (Alijani et al., 2014).

The use of the appropriate financial model to support business operations can create financial self-efficacy for businesses (Habib, Ries, Mühlhäuser, & Varikkattu, 2014). Cloud computing supports the OPEX model of technology acquisition and improves cash flow because less upfront cash is required; thus, more cash is available for organizations to grow their businesses. This is especially important for minority startup businesses, which may need substantial support to compete and thrive. In this study, I focused on how cloud-based business applications create financial value for minority startup business owners.

The driving force behind the success of cloud computing is the concept of shared services, which enables businesses to share technological resources using the same servers and networks. The IT processing systems of these businesses are hosted on the same networks and servers, and the pooled resources support their operations. When servers and networks are shared by businesses, efficiency is introduced into the system

thereby reducing individual businesses' costs (Colgren, 2014; Liu et al., 2014; King & Raja, 2013). In addition, shared computing increases the utilization of the networks and makes them more effective as shared resources on a pay per-demand basis (Colgren, 2014).

When resources are allocated through cloud computing, businesses are able to control costs. For example, a business that operates during the day can use the same IT resources used by a business that operates during the night. This sharing creates an around-the-clock use of IT resources, which ensures that the maximum capability of the networks and servers are realized. Redundancy is minimized, and efficiency is promoted. When costs are well managed, financial value is created for businesses, and this helps businesses grow and succeed (King & Raja, 2013).

Even though the cloud environment creates cost-savings opportunities for businesses, several challenges confront business leaders who move their business applications to the cloud. A major challenge involves security concerns (Ballabio, 2013; Lam, 2013; Lemoudden, Bouazza, Ouahidi, & Bourget, 2013). Unauthorized people could attempt to access sensitive data through data breaches, exposing the information of businesses to significant risk (Alijani, Fulk, Omar, & Tulsi, 2014; Rai, Sahoo, & Mehfuz, 2013; Sun, Zhang, Xiong, & Zhu, 2014). Business leaders need assurance that enough security exists in the cloud to protect assets hosted in the cloud from unauthorized users who seek to harm their operations. This assurance is provided by creating an information-based cost-benefit model founded on tested evidence. Such a model effectively helps interested parties to understand and appreciate the financial value of operating business

applications in the cloud within the context of the potential security challenges (Sun, (Zhang et al., 2014.

Existing research has not adequately addressed the lived experiences of minority startup small business leaders to determine how their experiences in operating business applications in the cloud create financial value for their businesses (Georgescu & Matei, 2013; Kern, Wilcox, Shapiro, Dhopeshwarkar, & Kaushal, 2012). Available literature on the issue has either focused on the technical information technology (IT) aspects of the issue, or on the quantitative measurements that create value for businesses operating in the cloud. Thus, a gap in literature existed in this area. The need therefore existed to bridge the research gap by properly comparing the costs of operating business applications in the cloud with the benefits of operating business applications in the cloud from a transcendental phenomenological perspective. Exploring business owners' experiences with operating business applications in the cloud could be important in determining how cloud-based operations create financial value for business owners.

The purpose of this study was to obtain a deeper understanding of the financial value of cloud-based business applications from users' perspectives. Hence, the research design consisted of a phenomenological approach. My intent was to understand the experiences of small business owners as they operated business applications in the cloud, and my goal was to determine how such user experiences assisted business owners to create financial value for their businesses.

The focus of this study was on the experiences of business owners who operated business applications in the cloud to create financial value for their organizations. Cloud

computing is a growing phenomenon that continues to attract businesses (Laribi & Didi, 2014). Many businesses have moved their data to the cloud to experience the advantages of operating in the cloud (Howell, 2015). Cloud computing allows businesses to share resources and use economies of scale to their advantage (Gonzalez & Smith, 2014; Ivanus & Iovan, 2014; West, Battleson, Kim, & Ramesh, 2014). However, inadequate research exists on this issue from a qualitative perspective, opening an opportunity for me to conduct this study to obtain an understanding of the financial value of cloud-based business applications using a phenomenological research approach.

Background of the Study

Several studies have been undertaken to obtain a better understanding of how financial value is created for businesses. Historically, the majority of these studies have been quantitative in nature, focused on determining the appropriate capital mix for businesses regarding whether to opt for debt or equity, to borrow or own, and to lease or purchase. Studying the creation of financial value for cloud-based business operations from a qualitative research perspective is a new research interest that may add to existing knowledge.

Ballabio (2013) examined security and availability techniques for cloud-based applications. For various reasons, business leaders may be attracted to move their business applications to the cloud (Ballabio, 2013). These attractions may include the perceived efficiency, flexibility, cost savings, and agility that cloud-based applications provide (Ballabio, 2013). Notwithstanding these benefits, the future of cloud computing remains uncertain as long as security concerns exist (Ballabio, 2013). Unless business

leaders are convinced that the cloud is secure and safe, they may continue to fear the safety of their operations in the cloud, and this will overshadow the benefits that the cloud can provide (Ballabio, 2013). In essence, business leaders will not be able to enjoy the benefits of cloud operations as long as appropriate measures are not implemented to overcome security concerns (Ballabio, 2013).

Security Challenges of Cloud Computing

The question remains whether small business owners will consider the cloud ready for serious business applications. Unreliable service in the form of cloud providers' recent power outages has led several practitioners to question whether the cloud is reliable for important business applications (Ballabio, 2013; Lemoudden et al., 2013). These concerns about the security and reliability of the cloud for business applications show the need for empirical research to study the lived experiences of people who operate within the cloud environment in order to understand the effectiveness of placing business operations in the cloud. Generally, people believe the Internet is good to have, but argue that the Internet is not made for businesses and therefore caution must be exercised when putting business applications in the cloud (Lemoudden et al., 2013).

Public cloud providers providing services such as infrastructure as a service (IaaS), platform as a service (PaaS), and software as a service (SaaS) have built perimeter defenses that can protect their clients' cloud assets (Ballabio, 2013). These companies have invested heavily to develop, deploy, maintain, and modify their security postures in order to provide a secure cloud experience (Ballabio, 2013). Providing a secure cloud platform is critical to the long-term success of business operations in the cloud. Cloud

security and availability solutions offer unprecedented flexibility across several protective capabilities in addition to load-balancing capabilities (Ballabio 2013, p. 6).

Emerging capabilities that continue to make the cloud more secure for business applications include extensive scalability, flexibility and adaptability, cost efficiency, superior redundancy, cloud load balancing, improved performance, and holistic integration (Juels & Opera, 2013). When organizations move their business applications to the cloud, Internet threats grow in size and sophistication. With the increasing incidence of cyberattacks, businesses are expected to remain vigilant and adopt processes that can keep digital infrastructure and assets safe. It is important for business leaders to adopt effective security for cloud-based business applications that can augment traditional, centralized protections offered by cloud providers (Ballabio 2013). With the implementation of appropriate security systems, the cloud environment will be more secure, and business owners will become less fearful to move their business applications to the cloud. This will position businesses to benefit from the flexibility and cost savings that cloud operations can provide to businesses.

Kern et al. (2012) studied the elements of health information technology that drove financial value and found that several inefficiencies existed that could be addressed to increase financial value. The authors identified 54 high-scoring functionalities, including providing alerts for expensive medication and redundant lab orders, sending and receiving imaging reports, and enabling structured medication reconciliation that could be improved to bring financial benefits to businesses (Kern et al., 2012). The functionalities helped healthcare managers to evaluate their operations constantly and to

consider technological improvements such as operating business applications in the cloud that could build financial value for their businesses (Kern et al., 2012).

Cloud computing has become a buzzword for not only IT professionals, but also for business owners in general (Rai et al., 2013). Figure 1 shows the cloud environment.

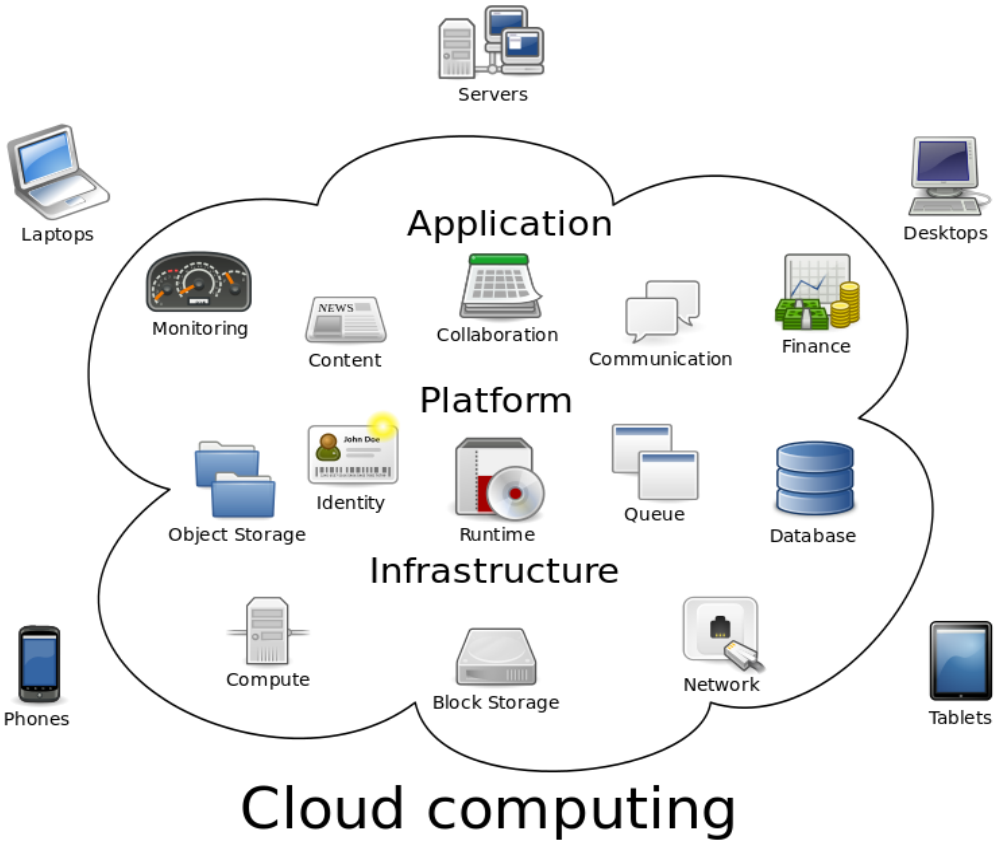

Figure 1. The anatomy of the cloud.

Rai et al. (2013) explored how software can be made available as a service model in a cloud-based computing environment, and focused specifically on the issues and solutions associated with making software safe in the cloud. The authors explored the potential impact cloud computing could have on business applications and the advantages

that organizations could enjoy by moving their business applications to the cloud. However, as noted, the features that make cloud computing attractive also challenge cloud computing security and create security concerns (Rai et al., 2013). For example, the software as a service (SaaS) model of cloud computing has security issues, but these can be mitigated by adopting effective security control measures to provide a secure cloud experience (Rai et al., 2013).

Rai et al. (2013) outlined the security issues involved in cloud computing, both traditional and those specific to the cloud.. Traditional security issues include authentication and authorization, availability, data confidentiality, and virtual machine security (Rai et al., 2013). Cloud-specific security issues include information security, network security, resource locality, cloud standards, data segregation, data access, web application security, data breaches, back up, and identity measurement (Rai et al., 2013). Current solutions for making cloud-based applications secure include open authorization, two-fact authentication, data dispersion, attribute-based proxy reencryption, information security risk management, multiuser access policies, data access management, and identity access management guidance (Rai et al., 2013). These measures can make the cloud secure and help business owners confidently use business applications in the cloud.

Building a secure cloud computing architecture to protect cloud-based applications involves authentication procedures, secure channels, and encryption prior to storage (Sreeja et al., 2014). Cloud-based computing provides on-demand access to computing resources at a lower cost to consumers who need such resources (Sreeja et al., 2014). Cloud computing can be beneficial to businesses as well; however, managers must

consider security, privacy and integrity issues when developing cloud based services because data and service will reside at the cloud providers' premises. A high level of protection can ensure the data in the cloud are not compromised or corrupted. To make the cloud more secure, developers have designed conceptual cloud architecture that adopts a hybrid encryption/decryption system algorithm that ensures the security of cloud operations (Sreeja et al., 2014).

Securing business applications in the cloud requires a security-system architecture consisting of functionalities such as authentication, encryptor/decryptor, tag generator, and verifier (Sreeja et al., 2014). The level of protection required to make cloud application secure is proportional to the value of the data hosted in the cloud. The data in the cloud are only as valuable as the security that protects them (Sreeja et al., 2014). Data are reliable as long as they are not compromised. Adequate security solutions can help address cloud-based security concerns such as availability, integrity, and confidentiality of data in the cloud-computing environments. A security solution for cloud applications can provide better checking on the integrity of third parties, cloud privacy managers, and hybrid encryption mechanisms.

Financial Value Creation

Management and corporate finance theorists have used various perspectives to study financial value creation. For example, two economists, Modigliani and Miller, developed a model known as the *Modigliani-Miller theorem*, which provides a conceptual framework for businesses to evaluate financial value (Levinsohn, 2003). Cash flow considerations are necessary when making buy or lease decisions (Brealey &

Young, 1980). The efforts by these theorists created the foundation for the understanding of capital structure and dividend policy as they are known and applied in corporate finance today.

Managers and members of corporate finance think tanks have widely accepted the work of Modigliani and Miller who earned Nobel Prizes in economics for their important contributions to the body of knowledge. Modigliani and Miller posited that in a situation in which the capital markets are perfect and taxes have a neutral effect, the mix of a company's capital structure, whether debt or equity, will not affect the value of the firm. Modigliani and Miller assumed that investors assess the value of businesses on the profits that the business generates and not on the source of its financing (Levinsohn, 2003). The implication of this thinking is that the financing source of a business is less relevant to investors as long at the business is generating good profits from its operations. This implication supports the assumption that business leaders are more likely to embrace cost-saving opportunities such as cloud computing because business leaders care more about profits than about the capital structures that support their operations.

Business leaders are therefore more likely to accept cloud-based operations if it can be shown that the cloud environment will help them become profitable and create financial value for their organizations. The classic concept of building financial value for organizations by using capital structuring strategies can be extended into exploring innovative new ways of building financial value for businesses. I determined that a phenomenological approach would be effective at documenting the experiences of business application users of cloud computing, and would generate the information

necessary to help business owners overcome the challenges of operating in the cloud. An understanding of the phenomenon of operating business applications in the cloud represents an opportunity to add to knowledge in this area, in alignment with the objective of this study.

Problem Statement

The financial crisis of 2008 has made it critical for businesses to explore cost savings measures such as cloud computing. Cloud computing can reduce businesses' technology costs by over 50% (Şiclovan, 2013). However, growing security risks in the cloud remain a formidable threat (Ballabio, 2013, p. 5). The general problem I identified in this study was that, notwithstanding the potential cost benefits, small business owners face security challenges when they move their business applications to the cloud.

The specific problem I addressed in this study was small business owners' concern that business applications operated in the cloud may be exposed to significant security risks (Rai et al., 2013), leading to loss of financial value and, ultimately, business failure. I used a transcendental phenomenological approach to bridge the gap in existing research and reveal small business owners' understanding of the costs and benefits of operating business applications in the cloud.

Purpose of the Study

The purpose of this qualitative study was to obtain a deeper understanding of the financial value of cloud-based business applications from the perspectives of small business owners. I used a phenomenological research design to understand the experiences of small business owners as they operated business applications in the cloud.

Specifically, I focused on business owners' experiences in the cloud and how cloud operations created financial value for businesses.

The fundamental principle that makes cloud computing efficacious and successful is the concept of shared services, which allow businesses to source their IT processing systems from the same server networks. This pooling of resources means the associated technology costs are shared, which ultimately reduces the per-responsibility costs for each business (Liu et al., 2014; Simamora & Sarmedy, 2015; West et al., 2014). Understanding the lessons learned by business owners from their experiences with operating business applications in the cloud could be important to determining how cloud-based experiences create financial value for businesses.

Research Questions

The following research questions guided this study:

1. What are the lived experiences of business owners who operate business applications in the cloud in terms of creating financial value despite security concerns?
2. What do business owners perceive as opportunities for businesses to move their business applications to the cloud?
3. What do business owners perceive as challenges in moving their business applications to the cloud?
4. How does operating a business application in the cloud create financial value?

Conceptual Framework

The conceptual frameworks for this study were based on the Modigliani-Miller theorem on appropriate capital structure using debt and equity, and Brealey and Young's (1980) concept of financial leverage. I used these frameworks because of their emphasis on the creation of financial value. These conceptual frameworks provide information that assist business owners to decide whether to buy or lease technology resources, thus these conceptual frameworks provide an understanding of how financial value is created for businesses. Whether business owners adopt the capitalization model (CAPEX) of acquiring technology resources through upfront purchase of the technology or adopt the operating model (OPEX) through a subscription-based process, these capital decisions directly affect how financial value is created for a business (Alijani et al., 2014; Ivanus & Iovan, 2014). The subscription-based model allows businesses to lease the technology resource and make periodic payments. An example is the software as a service (SaaS) model. A business leader should be informed and knowledgeable enough to make a decision that optimally creates financial value to improve the company's net worth and position it to grow.

Corporate finance theories provide the basis for conceptual frameworks that can be used to obtain an understanding of various capital structures. Leaders have a need to develop optimal capital structures that build the best value for their businesses as they interact with investors who have multiple interests. Understanding capital structures positions businesses to use the financing sources available to them in a way that is advantageous for their business and makes needed capital accessible to support the

operations of the business (Brealey & Young, 1980). The ideal capital mix will be the one that boosts return and profitability while reducing the risk of using that source of financing. The corporate finance theories advocated by Brealey and Young (1980) and other corporate finance philosophers provide significant guidance on capital structures and the risk and return associated with various sources of financing. I used these theories to better understand how business leaders make optimal corporate finance decisions to equip their businesses for grow.

Concerning leasing and buying choices, organizations evaluate the benefits and drawbacks of available choices in light of the needs of the business in order to choose the best course of action (Brealey & Young, 1980). When companies lease assets, they save the cash that would have been used to purchase the assets, but lose the ability to take depreciation on the assets because they do not own the assets. Elements that should be considered in making lease or buy decisions include the purchase price of the asset, lease payment in the year, depreciation of the leased asset, the marginal tax rate of the business, and the required rate of return on debt. Considering these elements will help business leaders decide whether owning the assets is best for their businesses or whether leasing the assets is a better alternative. These perceptions have practical benefits for organizations.

According to Brealey and Young (1980), cash flow considerations are vital when making buy-or-lease decisions. Brealey and Young (1980) extended Miller's work, noting that because leasing involves a series of fixed payments, it is proper to compare the cash flows from leasing versus cash flows resulting from upfront purchases when

making buy-or-lease choices. This comparison makes it possible for business leaders to understand the cash flow implications of such decisions and take actions in the best interest of the organization. Borrowing is never a more costly source of financing than is equity (Brealey & Young, 1980). Though this position could be debatable, the contribution of Brealey and Young has provided significant insights into corporate finance theory that could help business leaders better understand the consequences of their financing selections and determine how to select the best source of financing to fund their business operations. Leasing can be a favored source of financing when the organization has a lower tax liability. Tax considerations make buying a better financing choice because buying allows business leaders to deduct depreciation expense before finalizing their taxable income.

The Modigliani-Miller theorem provides a conceptual model that assists businesses to evaluate financial value (Levinsohn, 2003). In their corporate finance models, Modigliani and Miller posited that in a situation where the capital markets are perfect and taxes have a neutral effect, the mix of a company's capital structure, whether debt or equity, will not affect the value of the firm (as cited in Levinsohn, 2003). This outcome occurs because stakeholders evaluate the value of the business on the profits that the business is able to generate and not on the source of its financing. This view means that the financing source of an organization is not particularly important to investors as long as the business is making significant profits. This premise supports the assumption that businesses will accept the cloud environment if it saves them money and makes their operations profitable.

The financial crisis of 2008 has made it critical for business leaders to explore cost-savings measures. Such measures might include cloud computing, which can be used to manage technology costs effectively and create financial value to support operations. To date, researchers have not explored the lived experiences of business leaders to determine how their experiences in operating business applications in the cloud assist them to create financial value for their businesses despite the security concerns associated with cloud computing (Kern et al., 2012). A gap in literature existed in this area, especially regarding how cloud operations can help minority-owned small businesses survive and thrive in a competitive business environment.

For this study, I defined the phenomenon of cloud computing as the collection of experiences of people who use computing that involves sharing computer resources rather than using local servers or personal devices to support their business applications. Those who experienced the phenomenon firsthand included small business owners who have moved their business applications to the cloud with the aim of reducing computing costs and increasing the financial value of their businesses.

Alignment of Theory

It is important for researchers to align their research approach and method to theory. This alignment between approach and theory is vital to producing a coherent research product. In this study, the theories underpinning the creation of financial value were the Modigliani-Miller theorem on suitable capital structure using debt and equity (Levinsohn, 2003), and Brealey and Young's (1980) concept of financial leverage. I

aligned the research approach with these theoretical frameworks to foster understanding of how operating in the cloud creates financial value for businesses.

Usually organizations incur computing costs through either the CAPEX model or the OPEX model. The CAPEX model is based on capital costs, while the OPEX model is focused on operating costs. In the CAPEX model of obtaining technology, a business pays for initial technology costs as an asset and depreciates the assets over time on the books of the company. This model requires upfront investment of large sums of money. The CAPEX model can result in a cash flow challenge for a business that has thin cash flow because the investment of cash required upfront could affect the availability of cash to meet operational needs. In contrast, with the OPEX model, businesses use a subscription-based approach to fund technology initiatives that do not entail hefty upfront commitments of cash. The usage of the appropriate financial model to support business operations can produce financial self-efficacy for businesses. Cloud computing supports the OPEX model of technology acquisition in which organizations are free to use cash to expand operations. This access to cash is especially important for minority-owned startup businesses, which need support to remain competitive and thrive.

Nature of the Study

Research designs can be categorized as quantitative, qualitative, or both (known as *mixed method*; Maxwell, 2012). Quantitative research uses predetermined methods, typically employing survey-based instruments to collect performance, attitude, observational, and census data, and the data are analyzed using statistical techniques (Maxwell, 2012). Qualitative research, in contrast, comprises one or more evolving data

collection methods, including asking open-ended questions in interviews, conducting observations, and analyzing documents and audio-visual content (Maxwell, 2012). Data analysis consists of text and image inquiry, and produces themes through pattern analysis (Maxwell, 2012). Mixed-methods approaches encompass both quantitative and qualitative methods and may incorporate open- and closed-ended questions, multiple forms of data drawing on numerous likelihoods, statistical and text investigation, and cross-data elucidation (Maxwell, 2012).

I chose a qualitative research design for this study because it provided the framework to explore the experiences of the research participants I needed to obtain evidence to address the research questions. From several qualitative approaches, I selected phenomenology as the appropriate research design for this study because the phenomenological approach supported the study's purpose of exploring lived experiences. Drawn from philosophy, psychology, and education, phenomenology focuses on gaining an understanding of the essence of a person's lived experience. Phenomenological inquiry may incorporate interviews, documents, and observations to acquire evidence for investigation (Maxwell 2012). Phenomenological approaches typically do not study just one person; rather, the focus is often on understanding the experiences of several people who have encountered the phenomenon. Thus, phenomenology was a suitable research approach to attain an understanding of the perspectives and experiences of minority small business owners regarding the financial value of cloud-based business applications.

The most common data collection procedure associated with a phenomenological approach is conducting interviews with research participants. The phenomenological interview typically consists of questions intended to collect *what* participants experienced and *how* they experienced it (Moustakas, 1994). Accordingly, in-depth interviews based on open-ended, semistructured questions were the primary means I used to collect data from the participants in this study. The data were collected from interviewees in a collaborative atmosphere that offered opportunities for discussion to explore the experiences of study participants. I also collected and analyzed additional qualitative data such as researcher field notes of observations. The sample size for this phenomenological study was 15 users of cloud-based business applications: eight were business owners, five were information technology (IT) professionals, and two were ordinary operators of cloud applications.

Definition of Terms

Business application: Any software or set of computer programs used by business users to perform various business functions. These business applications are used to increase productivity, measure productivity, and perform business functions accurately.

Business leader: A person who owns a business or has a leadership role in a business and has the ability to make decisions on behalf of the business.

Cloud: A network of technology resources, such as servers, that are available to support computing.

Cloud computing: A type of computing that depends on sharing computer resources rather than using local servers or personal devices to support business applications.

Cloud-based: A term used to refer to applications, services, or resources made accessible to businesses on demand through the Internet from a cloud-computing provider's servers. Companies typically use cloud-based computing to escalate capacity, improve functionality, or add services on demand without having to commit to frequently expensive infrastructure costs that requires an upfront purchase of the technology resource.

Financial value: The monetary, material, or assessed worth of an asset, good, or service. I followed the accounting definition of value in which value is expressed in monetary terms. For example, the financial value of a business could be $1 million.

Software as a service (SaaS): A software licensing or delivery model in which software is accessed through a subscription model and is centrally hosted, allowing users access through a Web browser.

Assumptions

This study depended on several assumptions. First, I assumed that the participants would respond honestly with no bias when answering the interview questions. Second, in alignment with the theoretical framework, I assumed other economic and market factors that influenced the profitability of a business were not relevant to this study. Third, I assumed that business leaders were interested in increasing the financial value of their

businesses. Fourth, I assumed that pursuing cost savings is the best approach to boosting profitability.

Scope and Delimitations

Delimitations were necessary to narrow the focus of the study to the core issue of minority small business owners' perceptions of the financial value that using cloud-based applications could create. Given resource and time constraints, without some delimitations, this study would have been impossible to complete. First, I excluded other drivers that could have motivated people to start businesses, including achieving self-actualization goals or meeting a societal need (e.g., doing charity work). Instead, I focused on minority small business owners' perceptions of the financial value of cloud-based business applications. My definition of *success* was delimited to increases in the monetary value of a business through cost savings from sharing information technology resources, and I excluded other factors that could make a business successful. I also excluded economic and market factors that could influence the value of a business.

In the study, I focused on exploring the experiences of minority small business owners regarding the phenomenon of cloud computing. This population was specifically selected because they have the most direct influence on the value of their businesses. Business leaders make decisions that directly affect the direction of businesses; therefore, their actions or inactions can make a business succeed or fail. I excluded the experiences of regular business employees who have experienced cloud computing. From a quantitative perspective, collecting and analyzing the views of employees could be equally valuable; however, that approach was outside the scope of this study.

Knowledge from this study could potentially be transferable to other settings, regions, and populations. For example, the approach could be used to explore how the experiences of other stakeholders of a business such as employees and customers can influence the financial value of a business. Thus, this study may have the potential to provide foundational knowledge to inform future researchers who explore various aspects of creating financial value for businesses.

Limitations

This study was restricted with respect to the type of data that were collected to answer the research questions. Data were principally collected through interviews of business owners as they shared their experiences on the use of cloud-based business applications. To mitigate the limitations of the interview process, I encouraged the participants to provide truthful information. In addition, to mitigate the limitations of the qualitative data collection and analysis process, and to promote the dependability of the findings, I made every effort to ensure the data were collected and analyzed devoid of my own personal biases.

Maxwell (2012) noted that terms such as *validation*, *verification*, *trustworthiness*, and *authenticity* are vital in confirming the quality of qualitative research. Quality and credibility of research data are important for ensuring that the research outcomes can be trusted. I ensured quality, trustworthiness, and credibility of the study findings by adopting validation techniques that offered a basis for producing dependable evidence to support my research data. Possible validation strategies could have included conducting a lengthy engagement and continuous observation; using triangulation of multiple sources,

methods, investigators, and theories to deliver corroborating evidence for the study; employing peer review or examination; handling research bias; or employing outside auditors (Maxwell, 2012). I confirmed quality, trustworthiness, and credibility for the findings of this qualitative study by adopting continued engagement and persistent observation, triangulation, peer review or examination, and management of research bias to ensure that my research data were accurate and reliable.

Significance of the Study

The significance of this study involved the question of how financial value is created from operating business applications in the cloud. In this study, I highlight the challenges of operating business application in the cloud, especially with regard to security concerns. The findings of the study may provide insight into minority business owners' decision-making processes, especially in regard to making evidence-based decisions about operating their business applications in the cloud. Enhancing the understanding of financial value creation opportunities that exist for businesses that use the cloud has the potential to improve business success.

The central phenomenon of the study was cloud computing, specifically, how minority small business owners who operated business applications in the cloud created financial value for their businesses. Cloud computing is an emerging phenomenon that continues to entice business owners. A number of businesses have migrated to the cloud to experience the advantages of operating in the cloud. Cloud computing enables business to share resources and use economies of scale to their advantage. To date, inadequate literature on this issue has been written from a qualitative perspective. This gap in the

literature marked my need to conduct this phenomenological study to attain an understanding of the financial value of cloud-based business applications.

Significance to Practice

The study's significance to practice involves providing practitioners with a deeper understanding of the financial value of using cloud-based business applications. This knowledge could help to inform their decisions on whether to select cloud-based business applications as a feasible information technology alternative to create savings and financial value for their businesses.

Significance to Theory

The study's significance to theory is the bridge it provides across the gap in existing literature in the area of assessing financial value from a phenomenological perspective. Existing literature on financial value has typically been quantitative in nature, and the qualitative data in this study provides a much-needed addition to literature in this area.

Significance to Social Change

The results from this study could lead to positive social change for minority small business owners who are eager to understand how cloud-based business applications can generate financial value for their small businesses, but who do not have the resources to conduct the research on their own. This study may provide valuable information for minority small business owners that will equip them to understand the challenges of operating in the cloud, provide them with the information to overcome these challenges, and help them grow their businesses with affordable cloud-based IT resources. This study

may contribute to the success of minority small business owners who use the findings of this study. By extension, the findings may contribute to building better communities and societies in which these minority small businesses operate.

Summary and Transition

Business leaders seek ways to create financial value for their businesses. Emerging technology has provided cloud-based information technology platforms on which businesses can share resources on an on-demand basis through a subscription model, instead of spending capital on upfront purchases of expensive technology infrastructure. The software as a service (SaaS) model that drives the concept of cloud-based business applications brings significant cost savings to businesses. Small minority-owned businesses often lack the resources to acquire the technology on their own, so the cost savings generated from using cloud-based business applications could provide businesses with the opportunity to create financial value for their operations, helping them to thrive.

The purpose of this study was to understand the financial value that cloud-based business applications created for businesses. Using a qualitative methodology, I employed phenomenological interviews to collect the experiences of small business owners who have used cloud-based business applications. The goal was to understand how their experiences influenced the creation of financial value for their businesses.

Chapter 2 is a review of the literature on the topics of cloud computing and the financial value of cloud-based business applications. In it, I examine the rubrics of financial value for businesses that use cloud-based business applications, and provide an

overview of existing literature on cloud computing. I describe in more detail the security concerns about the cloud, and establish how these security concerns may affect the decisions of business leaders to operate in the cloud. Further, measures to mitigate and remove security concerns related to operating in the cloud are examined. The literature shows the opportunities and challenges of operating business applications in the cloud. The literature further shows how cost savings from operating business applications in the cloud can create financial value not just for businesses in general, but even more importantly, for small minority businesses that need this critical technological resource to remain competitive and succeed.

Chapter 2: Review of the Literature

Introduction

The objective of this literature review is to analyze and synthesize the literature on the financial value of cloud-based business applications. In what follows, I (a) define and conceptualize cloud computing as an emerging phenomenon; (b) discuss SaaS and review cloud-based business applications and business opportunities in the cloud; and (c) examine the security concerns that surround business operations in the cloud and provide an analysis of the opportunities and challenges that exist when operating businesses in the cloud. Further, I examine practical issues that business leaders face when deciding whether to operate in the cloud, and address current issues confronting practitioners and researchers in the field. The chapter also includes a discussion of various financial value-creation models and their relevance to this study. I then provide a comprehensive review of the conceptual frameworks that underpinned this study, and address how minority small business owners can benefit from cloud technology. Finally, I identify the gaps in the literature that led to this research.

Literature Search Strategies

In developing the conceptual framework for this study, I sought literature relevant to the financial value of cloud-based business applications. To search for relevant literature, I used resoureces available from local public local libraries and Walden University library to search databases such as Thoreau Multi Database Search, Academic Search Complete, ProQuest Central, and Google Scholar. A subject-based approach was used for the search, and the search terms included *financial value, cloud computing,*

business leaders, *minority businesses*, *security concerns in the cloud*, *financial value creation*, *business opportunities in the cloud*, *business challenges in the cloud*, *cost savings*, and *cloud-based business applications*. In addition, I used search limiters to reduce the search results to manageable levels. Search limiters are critical for filtering results to only those that are relevant to the issue being researched. I used limiters such as *AND*, *peer-reviewed*, *cloud-based*, and *minority*, among others, to narrow the search results.

Strategies for conducting effective searches in online databases include using appropriate keywords to search for needed items. The following tips from the University of Illinois Library (n.d.) helped me conduct online database searches:

1. Create a search statement using keywords.
2. Use bibliographic databases appropriate to [the] topic. Checking more than one can be useful to pick up unique titles.
3. Use keywords and controlled language.
4. Use Boolean searching.
5. Change approaches as necessary—gathering information is not a linear process.
6. Continue to identify applicable keywords and controlled vocabulary and go back to check in the selected database(s) and other resources. (Introduction section)

Cloud Computing

Definition of Cloud Computing

The National Institute of Standards and Technology (NIST; as cited in Simamora & Sarmedy, 2015) defined cloud computing as follows:

> Cloud computing is a model for enabling a ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be provisioned and released rapidly with minimal management effort or service provider interaction. (p. 396)

Cloud providers facilitate cloud computing by establishing computing storage and computing service centers which virtualize computing resources, storage resources, and software resources into "clouds" in the form of a shared IT resource pool for remote computer users (Gao, Yang, Liu, & Hou, 2013). Cloud computing allows business leaders to share a pool of configurable computing resources through ubiquitous and on-demand networks (West et al., 2014). The major actors in the cloud environment are the cloud consumer, cloud provider, cloud carrier, cloud auditor, and cloud broker (Versick & Tröger, 2014). Cloud computing is used in agriculture, business and commerce, healthcare, hospitality and tourism, and the education and training sectors, among others (Paul & Dangwal, 2014). According to Alijani et al. (2014), the major cloud providers with their respective market shares are Amazon (36%), Dropbox (22%), AT&T (19%), Verizon (15%), and others (8%).

Cloud Computing as an Emerging Phenomenon

Cloud computing was called *utility computing* in the 1960s when it was developed by Douglas Parkhill and John McCarthy (Durao et al., 2014). The original model was designed to allow users to pay for what they used, similar to the payment systems used in traditional utilities such as water, gas, and electricity (Durao et al., 2014). The massive computational power needed to crunch big data numbers is now available and accessible through cloud technologies (Shrestha, 2014). Currently called *cloud computing*, a key feature of the system is that users pay only for services used, and cloud providers intelligently provide computing capabilities that increase or decrease computing power to meet users' changing needs (Durao et al., 2014).

Cloud computing as an emerging technology began in 1960 when a scientist named John McCarthy predicted that computing would be available and maintained as a public service (Simamora & Sarmedy, 2015). Cloud computing started when small business owners sought economical, professionally-managed information technology operation. The dynamic capabilities that cloud computing provide to organizations allow them to integrate, build, and reconfigure competencies; thus, these capabilities allow business leaders to address challenges presented by rapidly changing business environments and position their organizations to achieve competitive advantage (West et al., 2014). Cloud computing offers organizations alternatives to traditional computing and provides in-house software development with the capability to "own" technical infrastructure through cloud computing (Holubek & Floyd, 2013).

Growth of Cloud Computing

Cloud computing has grown from a novel technology into a mainstream IT strategy. “Cloud computing, which is a relatively new term and model, provides service access through the Internet to distributed systems of configurable calculus resources upon request with minimum management effort on the part of the user”. (Avornicului & Moisuc, 2015). The cloud computing market is predicted to reach $241 billion by 2020 (Carcary et al., 2014). As an emerging phenomenon, cloud computing has touched many industries and it continues to grow as more businesses move their operations to the cloud. Cloud computing has evolved as a model of computing for both commercial and academic applications (Steinbauer, Khalil, & Kotsis, 2014).

New computing paradigms, concepts, and solutions are driven by the emergence of new technologies and expanding amounts of data (Kos et al., 2015). The growth of cloud computing has been largely driven by the expansion of big data, which has supported big data processing and big data applications such as wireless sensor networks and the Internet of Things (Kos et al., 2015). Ko (2014) noted that the use of cloud-based business applications increased significantly in 2014, and that the use of cloud resources jumped from IaaS and public cloud adoption to the delivery of strategic and complex initiatives.

Cloud computing is a $70 billion global industry with the potential to increase revenue significantly in future years (King & Raja, 2013). The reasons behind the growth of cloud computing include faster access to market, lower cost, higher quality, better performance, and accelerated pace of innovation (Holubek & Floyd, 2013). The value

and importance of cloud computing has led some thinkers to consider it the "fifth utility" after water, electricity, gas, and telephone (Alsahib, Aldeen, Salleh, & Razzaque, 2015).

Impacts of Cloud Computing on Consumers

The use of cloud computing has shifted surplus from producers to consumers, representing a fundamental shift in value from providers back to customers. Cloud computing has affected patterns of consumption; consumers continue to benefit as new cloud-based applications and services emerge that reduce the need to install and maintain local applications (Cătinean & Cândea, 2013).

Software as a Service (SaaS)

Cloud computing resources deliver computing technologies in the areas of IaaS, SaaS, and PaaS (Wang et al., 2014). SaaS has become a popular business model among small and midsize entities (Murphy, 2015). The development of SaaS over the past 10 years has generated interest in quality, monitoring, and management of business applications (Burkon, 2013). Cloud computing offers businesses the ability to access IT resources over the Internet in exchange for storing and operating resources locally (Zota & Petre, 2014).

SaaS can be used in a wide range of business areas including human resources, governance, enterprise performance management, customer relationship management, accounting, financial reporting and disclosure management, and data analysis (Murphy, 2015). SaaS also provides improvement in development and operational performance (Holubek & Floyd, 2013).

SaaS has extensive business applications. For example, the expansion of cloud computing has attracted the use of mobile devices to the cloud platform. Currently Web-based and mobile applications are being developed using cloud technologies (Butoi et al., 2013). A variation of cloud computing called *mobile cloud computing* has seen significant growth in many industries, especially academia. Direct investment in mobile computing is expected to grow to about $68 billion by 2017, and it is expected to produce a $1 trillion mobile cloud market (Rahimi, Ren, Liu, Vasilakos, & Venkatasubramanian, 2014). SaaS business applications have also been employed in the financial industry in innovative ways including improved credit card and online banking service offerings (Laven, 2013).

Cloud computing allows organizations to improve their business model capabilities and their ability to meet computing demands while avoiding significant investments in infrastructure, training, personnel, and software (Babu et al., 2013).

Business Use of Cloud Computing

In recent years, the use of business applications in the cloud has attracted the attention of researchers, investors, and practitioners (Durao et al., 2014). Business leaders have found that cloud computing gives them the opportunity to outsource their entire IT function. In this value-oriented strategy, business leaders avoid paying high technology infrastructure costs, yet still have access to quality IT resources, albeit in a shared environment (Gonzalez & Smith, 2014; Ivanus & Iovan, 2014; West et al., 2014).

The cloud environment appeals to businesses of all sizes and types. For example, cloud-based startup businesses such as Salesforce.com and Rackspace.com have

expanded operations to become a force to reckon with in their industries. Major corporations such as Google, Microsoft, and Amazon are even embracing the flexibility that the cloud offers (Gonzalez & Smith, 2014). Cloud computing is the technology of tomorrow (Khalid & Shahbaz, 2013), and it can be used by all types of businesses, including nonprofit organizations. Nonprofit organizations have utilized cloud computing as a new delivery model for their services to create greater efficiency and reduce costs (Crump & Peter, 2013). Even government agencies have used cloud computing to support public institutions in optimizing costs and increasing operational efficiency, thus bringing tangible benefits to citizens and society as a whole. Small and medium enterprises (SMEs) have adopted cloud services on a rental basis from cloud providers (Saravanan & Rajaram, 2015). In sum, a significant expansion in cloud service providers over the past five years shows cloud computing is an emerging phenomenon with the capability to create financial value for businesses (Gonzalez & Smith, 2014).

New business models. The emergence of cloud computing has resulted in the creation of cloud workflow systems designed to facilitate the cloud infrastructure and support large-scale distributed collaborative e-business and e-science applications (Wu, Liu, Ni, Yuan, & Yang, 2013). This capability has created new business models that emphasize the efficient use of business resources. The major models for implementing cloud computing are private cloud, community cloud, public cloud, and hybrid cloud. The three main types of services are software as a service (SaaS), platform as a service, and infrastructure as a service. In addition, cloud computing consists of five main features: on-demand self-service, broad network access, resources pooling, rapid

elasticity, and measured service (Simamora & Sarmedy, 2015). A well-designed and optimized cloud-oriented workflow system is important for supporting the office information management in order to accomplish business tasks (Mao et al., 2013).

Cloud services can position businesses to attain transformation payoffs (Stamas, Kaarst-Brown, & Bernard, 2014). Cloud computing equips companies to manage information systems costs more efficiently (Laribi & Didi, 2014). For example, cloud platform integration can transition a business from traditional manufacturing business model to become a service-oriented enterprise (Stamas et al., 2014). Qian and Palvia (2013) found that cloud computing had profound impacts on various aspects of the organization's overall IT strategy including IT architecture, IT management, data strategy, and IT vs business alignment. The cloud computing environment is best for applications that have little interactions with back-end systems, applications where demand fluctuates over cycles, applications for business intelligence and data mining procedures, and development and testing with short term use such as advertisement and campaigns (Lnenicka, 2013).

The emergence of cloud computing has created a shift toward new on-demand business models that support applications portfolios, infrastructure, and data in a way that makes computing resources available at lower cost (Babu et al., 2013). The shift has resulted in technological and commercial changes and has affected current working practices (Babu et al., 2013). This growth has reduced the number of physical machines, thus reducing cost and energy, controlling delays in processing media services, which has

improved response time, and achieving load balancing and total utilization of physical resources (Hassan et al., 2014).

Technology. Cloud computing offers software, storage, computing power, and other services to users from remote places over the Internet (Tripathi & Jigeesh, 2013). It provides the opportunity for businesses to use these applications without actually installing physical hardware and allows these businesses to access their data from any computer that has internet access (Tripathi & Jigeesh, 2013). These opportunities are especially important to minority startup business owners.

Cloud computing has facilitated the evolution toward cloud-based business support systems (Dragan & Zota, 2015). Cloud computing offers a scalable and elastic IT-enabled capability that delivers computing services through the Internet (Cătinean & Cândea, 2013). With the shift to public clouds, there is now a movement from reliance on heavy physical storage to a concentration on utility computation resources in which both hardware and software are accessed when needed and released when not required (Khalid & Shahbaz, 2013). This procedure avoids wasting precious organizational resources.

Cloud computing facilitates data storage. It allows businesses to store and access data and programs over the Internet instead of on the hard drive of onsite computers (Watson & Mishler, 2014). The different service models of cloud computing make it possible for different layers of the cloud architecture to provide service to different users of cloud computing resources (Khalid & Shahbaz, 2013).

Evolving models of cloud computing includes the deployment of federated and hybrid clouds (Steinbauer et al., 2014). Federated clouds are difficult to achieve because

clouds stacks tend to be heterogeneous, and they lock their customers in. A cloud architecture that adds a layer of abstraction on top of existing architecture of infrastructure of clouds provides an environment where different clouds stack to each other (Steinbauer et al., 2014). These provide feasible applications that simplify complex cloud architecture.

Cloud computing prevents server sprawl, which is a situation in which multiple servers are underutilized while they take up more space and consume more resources than are justifiable by the workload (Cătinean & Cândea, 2013). Preventing server sprawl results in well-managed energy consumption and controls operating costs (Cătinean & Cândea, 2013).

Multimedia cloud computing is growing to become a promising technology that provides a flexible stack of computing storage and software service in a scalable and virtualized way (Hassan et al., 2014).

Business Opportunities in the Cloud

As an emerging phenomenon, cloud computing has become a current business trend. Cloud computing is a technical development in which small and medium-sized companies move their businesses to public application service clouds with the goal of reducing investments in information technologies (Li et al., 2013). Papagianni, Leivadeas, and Papavassiliou (2013) noted the main advantages of cloud computing include the pay-as-you-go business model and the geographical dispersion of resources, which allows businesses to have viable, cost-effective solutions for managing their networks and services. Many business leaders have adopted the cloud by starting with the

private cloud environment first and then gradually joining the public cloud (Bushell-Embling, 2013).

The primary benefits of cloud computing services can be seen in business areas such as financial, technological, operational, and environmental. The growing complexity and management costs of enterprise information technology motivate organizations to explore improved ways of fulfilling computing needs. Switching to the cloud enables businesses to improve customer value, optimize their resource bases, increase value configuration, and strengthen cash flow (Boillat & Legner, 2013). These optimizations are achieved by better managing initial IT investments, by encouraging a subscription model, by removing dependency on human factors, and by delivering valuable computing resources at low cost. The advantages of cloud computing include lower costs, faster implementation, reliance, and scalability (Georgescu & Matei, 2013).

Cloud computing has created opportunities for entrepreneurs: Small businesses can utilize the agility provided by cloud technology to become competitive with bigger companies (Cătinean & Cândea, 2013). In addition, cloud computing has enabled the creation of new products and services. Providers of cloud services have inspired competition from both large technology companies and current customers, who may decide to deploy their own cloud resources (Cătinean & Cândea, 2013). Cloud computing has facilitated economic growth and productivity in which enterprises can take advantage of public and private cloud models to increase productivity and enhance flexibility (Cătinean & Cândea, 2013).

The cloud lowers costs. Cloud operations allow businesses to save money and create financial value by using cloud services to meet their technological needs (Sagar et al., 2013). Cloud customers use the cloud service provider's processors, memory, storage space, network bandwidth and software and pay for these services on an "as used basis" (Wang et al., 2014). For example, in the area of energy management, cloud-based applications could reduce the facility costs while providing a consistent improvement in energy conservation (Cheng et al., 2015). Cloud computing also has a beneficial application in the supply-chain industry (Cheng et al., 2014). The major motivation for moving to the cloud is the lower operating cost that comes with using cloud resources. The attraction to cloud computing is founded on access to low-cost computing resources (Georgescu & Matei, 2013).

The increased implementation of cloud computing models has made cloud computing more available to users, and this continues to reduce cost for cloud users (Toader, 2015). Data center colocation, made possible through cloud computing, allows the rental of secure spaces in the cloud from a vendor, facilitates power-sharing capacity, and provides proven security protocols, all of which reduces costs (Rajendran, 2013). Businesses that move to the cloud benefit from reducing the waste of information systems resources, which increases data center efficiency and lower costs (King & Raja, 2013). Through a data collocating center, a hospital, for example, can expect to save 20% to 30% in typical computing costs (Rajendran, 2013).

The low cost and accessibility that the cloud environment provides creates an opportunity to replicate real-world usage by geographically distributed users and allows

for the execution of wide varieties of user scenarios at a level that is previously unachievable within a traditional computing environment (Lnenicka, 2013). These cost savings allow businesses to manage their resources more effectively. The cloud service providers bear the burden of actually deploying the cloud resources and the users simply pay for the resources they use (Wang et al., 2014). Moving to the cloud can provide the cost savings that would free up resources that can be used to motivate employees in order to create financial value for businesses.

Opportunities in cloud computing comprise cost savings, speedy deployment, scalability and enhanced placement of technology resources, reduced work in handling technology, and environmental benefits, since replacing private data center with cloud computing would considerably reduce total power consumption, carbon emissions, and physical land use (Babu et al., 2013).

The cloud promotes efficiency. The five key features of cloud computing are self-service, pay-per-use, elasticity, customization, and board availability (Stipravietis et al., 2013). These key features make cloud computing an attractive option for businesses to manage their technology costs while achieving efficient use of computing resources.

The cloud facilitates social commerce. Cloud computing facilitates social commerce by providing a framework that encourages social interactions in a collaborative environment. This is achieved by bringing together enterprise social interactions, actors, and business processes in a way that enhances relationships while addressing constraints to improve working relationships. Cloud computing has taken

social networking to a new level by moving from a server-based technology to an environment that follows the cloud-computing paradigm.

The cloud enhances competitiveness. Many enterprises have moved to the cloud to take advantage of its economic and technological model (Lemoudden et al., 2013). When organizations adopt capability improvement initiatives, they are able to realize sustainable advantages through IT enabled business innovation and differentiation (Carcary et al., 2015). Cloud computing offers businesses the opportunity to remain competitive from both cost and operational perspectives. Recent technology advancements including cloud computing, big data, social and mobile technologies, and Internet of Things have created unprecedented business opportunities (Carcary et al., 2015). Cloud computing is one of the emerging technologies that continues to create business opportunities. Companies can leverage cloud computing architecture, platforms, and applications to gain competitive advantages (Shayan et al., 2014).

The cloud enhances innovation. Cloud computing has evolved as a model for delivering and consuming information technology services by offering greater flexibility and increased agility, which creates innovation for businesses (Cătinean & Cândea, 2013). For example, cloud-computing technologies applied to the supply-chain system drive the evolution of business innovation, which reduces industry operating costs and enhances industry competitiveness (Cheng et al., 2014). Further, cloud computing provides the framework that supports crowdfunding, which creates opportunities for small and mid-sized entities as well as startup businesses to have access to much needed capital in a cost-effective way (Colgren, 2014). Cloud technology has fueled the creation

of emerging Web services (Lei, Zhili, Luoming, & Xuesong, 2014). Cloud computing has also supported the development of information and network technology, which have improved production, service, and operations of businesses (Gao, Yang, Liu, and Hou (2013).

Business leaders who desire to utilize their experiences of operating cloud-based business application to grow their businesses need an appreciation of business innovation. Innovation is realized when people explore their capacities and stretch their imaginations to develop innovative solutions to business problems. Creative business leaders who seek innovative solutions to their technology challenges are more likely to embrace cloud-based applications and move their business operations to the cloud. Creativity enhances opportunities for creative thinking and enriches the experiences of business leaders as they utilize business application in the cloud. Research shows that various activities contribute to creative thinking. For example, Wun (2013) studied how creativity contributes to social and emotional development.

The cloud promotes flexibility. Andrikopoulos et al. (2013) wrote that the proliferation of cloud services has allowed for more flexibility and better control over application migration, and this flexibility has made the migration of architectural components to the cloud feasible. The shift of the cloud from private clouds to public clouds has created the opportunity for cloud providers to offer computing as a service model; this shift has resulted in rapid advancement and growth of data center services (Beaty, 2013). The cloud mechanism automates the process of resource scheduling, task scheduling, and backup, thus enabling rapid release of resources (Mohan &

Satyanarayana, 2015). This automation brings efficiency to business operations. Cloud technologies provide elasticity and flexibility and allow cloud-based resources to be more useful and relevant (Butoi et al., 2013).

Cloud computing revolutionized the way computing power is generated and consumed and it is the next pervasive model of consuming information technology in organizations and it is on the way to replace the traditional model of computing (Cătinean & Cândea, 2013). Cloud computing delivers information technology from computing power to computing infrastructure, applications, business process, and personal collaboration for users of cloud resources (Paul & Dangwal, 2014).

The move to the cloud and the adoption of enterprise architecture create the framework for cloud-based self-generated business service that increases the agility of businesses (Gromoff, 2013). New internet-based technologies especially cloud computing are transforming business models around the world (Ramirez et al., 2013). This capability supports the growth of businesses.

Technological trends such as cloud computing are driving business innovation and are creating business opportunities (Pisano et al., 2015). Iovan and Daian (2013) agreed that cloud computing is one of the fastest growing segments of the global technology and it has brought great benefits to global economies. It has provided high quality IT resources to businesses at lower costs (Iovan and Daian (2013). Simamora and Sarmedy (2015) acknowledged the increased effectiveness and efficiency that cloud computing had created and encouraged businesses to move to the cloud. The emergence of cloud business models has attracted companies of all sizes who are being drawn as a

result of the promise of greater efficiency, cost savings, improved internal processes, enhanced collaboration, and advanced permissions (Howell, 2015). This equips businesses to develop growth strategies.

Cloud computing offers IT solutions to businesses in the area of enabling them to address rising IT costs, the need for capital investments, and the increasing energy consumption (Markovic et al., 2014). The priority of cloud computing is on information management instead of focusing on managing infrastructure and this new emphasis is of interest to businesses, educational institutions, governments, and individuals (Markovic et al., 2014). The drive for technological innovation assists companies to identify changes, adapt products to new customers, and anticipate market movements (Ramirez et al., 2013). This has created the framework for popular service-based cloud software (Li et al., 2013). Cloud computing allows users to scale the usage of cloud resources to meet their computing needs (Fuhong Lin et al., 2014). Virtualization created the environment for sharing and better potential for reuse.

The cloud offers a pay-as-you-go payment model. A major driver for the growth of cloud computing is its model of offering computing resources on a subscription basis: Cloud computing allows businesses to pay only for services actually consumed (Laribi & Didi, 2014). By using cloud-based resources, business leaders can access important technology resources on a rental basis, and they do not have to provide heavy upfront capital investments to acquire expensive computer resources. Cloud computing services are paid per usage and may increase or decrease based on demand (Durao et al., 2014).

The profit-center model offers greater internal quality enhancement to cloud-based IT services than the cost center model (Choudhary & Vithayathil, 2013). It creates a comparative basis for selecting resources.

The cloud enhances effective management. Mach and Schikuta (2013) suggested that when it comes to operating in the cloud, business leaders must develop models that work in relation to their own business strategies. These business models should help the leaders analyze the impact of cloud-based business applications on the operations of their businesses (Mach & Schikuta, 2013).

Important aspects of the cloud environment, such as the energy efficiency of cloud systems, can be evaluated using business models designed to address the needs of each leader's business (Mach & Schikuta (2013). The addition of value through resource efficiency is important for business growth. Businesses can deploy cloud-based resources to achieve intellectual capital management by lowering costs and increasing competitiveness and earnings (Lnenicka, 2013), thus making business managers more efficient and effective.

The cloud promotes collaboration. The cloud environment promotes collaboration among cloud users. For manufacturing businesses, for example, cloud manufacturing creates a unique cooperative framework, which enables collaboration among the entire manufacturing ecosystem (Qanbari, Li, & Dustdar, 2014). Cloud computing provides the capacity to create new collaborative relationships between business entities and corporate IT departments because it brings interested parties together to explore effective and efficient technology strategies (Georgescu & Matei,

2013). Habib et al. (2014) noted that cloud computing provided dynamic and scalable computing resources in a more cost effective way as a result of promoting economies of scale and resource sharing among users. In addition, such sharing environments can generate ideas that can become the framework for great inventions.

Business Challenges in the Cloud

Business leaders face challenges when they move their operations to the cloud. Challenges include major cloud computing risks involving operational, organizational, technical, and legal areas. Many business challenges exist within the cloud environment for both users and providers of cloud resources. In general, from a service provider perspective, the challenges of providing cloud services include delivering adequate security, managing business risks, defining and managing service level agreements, and maintaining application performance (Demirkan & Goul, 2013). Most of the risks occur in the technical area. Other problems for business leaders can include a lack of creativity, problems with pricing, service, disruptions, among others.

Technological risks. While cloud computing continues to enjoy increasing acceptance among a wide range of users, technical issues remain when using the cloud. The major vulnerabilities in the cloud include unauthorized access to management interface, data recovery vulnerability, and meeting and billing evasion (Lemoudden et al., 2013). These vulnerabilities are created from insufficient security audit options, lack of standard security controls regarding audit and logging, lack of proper certification, and lapses in continuous security monitoring (Lemoudden et al., 2013). From the user-perspective, major concerns with using the cloud include privacy, availability, integrity,

confidentiality, redundancy, loss of service, lack of liability, pay per use approach, variable cost, and difficulty of using the cloud (Alijani et al., 2014). These risks and security concerns threaten the maintenance of a safe and secure cloud environment.

The main threats in cloud computing are data breaches, data loss, traffic hijacking, insecure interfaces, denial of service, malicious insiders, abuse of cloud services, insufficient due diligence, and shred technology vulnerabilities (Fernandes et al., 2014).

Major threats in the cloud include data breaches, data loss, insecure interfaces and APIs, malicious insiders, account or service traffic hijacking, abuse of cloud computing, shared technology vulnerabilities, denial of service, and insufficient due diligence (Lemoudden et al., 2013).

Liu et al. (2014) listed the threat and security concerns in the cloud environment, including information disclosure to unauthorized parties; information tampering by unauthorized users; information repudiation in which cloud users are denied access to activities or events; and spoofing, which involved cloud parties misrepresenting themselves by pretending to be someone else. Babu et al. (2013) listed the risks of operating in the cloud to include disruptive force, cyber-attacks, data leakage, IT organizational changes, and cloud service provider viability.

The top 10 cloud-computing risks include privacy issues, inconsistent data, difficulty to switch cloud providers, lack of disaster recovery plans, migration difficulties, inadequate training, cloud applications becoming unavailable, increasing hidden costs, denial of service attacks, and unauthorized access (Dutta, Peng, & Choudhary, 2013).

Another security concern of cloud computing is that the scheduler could be vulnerable to malicious behavior when users attempt to deny service to others in order to maximize their own resource usage (Zhou, Goel, Desnoyers, & Sundaram, 2013). These security concerns can be addressed by implementing the appropriate strategies to overcome them. Several of these technical issues can be addressed at the organizational level by joining resources to build larger cloud installations instead of using multiple smaller installations (Steinbauer et al., 2014). In addition, migration of cloud services from one cloud stack to another and from one public cloud provider to another can mitigate several of the existing problems with using the cloud (Steinbauer et al., 2014).

Lack of creativity. An important strategy for overcoming the challenges that exist in the cloud is for business leaders to develop creative capacity. Creativity can provide business leaders with the ability to develop innovative solutions to business challenges as they operate their businesses in the cloud.

The attraction to the cloud can be founded on a person's desire to maximize creative capacity as propounded by human development theories. A thorough examination of human development theories, as represented by the theories of Maslow provides a useful framework for determining how developmental factors influence a person's ability to utilize creative skills. An examination of the theories of Maslow provide a spectrum of ideas from which business leaders can draw from to accomplish maximum use of their creative skills and provide satisfaction of self-worth in their pursuit of relevant goals in life. Such use of creative skills does not only benefit the student, but

it helps the society in general as innovative ideas are found through the utilization of creative skills to provide solutions to existing problems.

Motivation of cloud users. People who are interested in learning about the creative capacities of individuals are often drawn to the work of Abraham Maslow. Professionals who aspire to know more about the factors that motivate individuals to put out their best performance and self-actualize will be attracted to the work Abraham Maslow. The field of management, similar to several other academic disciplines, is endowed with dynamic prolific theorists whose works have contributed to world knowledge in addition to providing theoretical frameworks for their chosen disciplines. The world has been made a better place to live as a result of the valuable contributions that these theorists have made. Abraham Maslow can be viewed as one of such theorists and his work continues to be relevant today. His work on the development of human capabilities in the area of leading creative organizations to achieve extraordinary accomplishments is one such outstanding contribution to organizational management which continues to thrive today.

The contribution of Abraham Maslow and several other management theorists has provided the foundation upon which management as we know today is built. Maslow's core theories are in the area of motivation and self-actualization. Without a doubt, Maslow's work on creativity has motivated many technology companies in the Silicon Valley to defy the status quo and build mind boggling enterprises that touch the lives of people across the globe. The leaders of these great companies often attribute their motivation to the work of Abraham Maslow. These theories show that human

development factors such as the environment can influence people to maximize the use of their creative skills.

Rosen (2013) wrote that the work of Abraham Maslow was still relevant. She used corporate executive experiences to show the practical application of Maslow's ideas. She suggested that Maslow's unique brand of humanistic psychology was active in the advice and self-help industry. The relevancy of the work of Maslow to reach out to people who need motivation to do great things still has impact in corporate boardrooms across the globe. It is even arguable that the work of Maslow has influenced the thinking and management style of virtually every executive on the planet who thinks about ways to develop strategies on a daily basis to lead the next generation of innovative ideas. The leaders use Maslow's ideas to improve the lives of people around them in ways that enhance the creativeness of the individuals while creating an environment that benefits the society as well.

According to Abrami (2011), Maslow did not limit creativity to professionals only. He attributed creativity to all people who were able to use the little skills and resources they had to produce good results. The summary of Maslow's contribution as a theorist is found in his work on human motivation and self-actualization. Managers all over the world use Maslow ideas to bring innovation to their place of work. Employees are motivated by Maslow's ideas to work toward the next level of promotion. Business leaders are encouraged by Maslow's ideas to work toward their next level of academic success. Wherever we find ourselves, whether at school or at work, we can find a good

use for Maslow's ideas. They are timeless bundles of motivational tools that help us to work toward a higher ground in life.

The ideas that Maslow wrote about several years ago are still relevant and applicable today. They have not lost their value. These ideas still resonate with us clearly and authoritatively. These ideas are especially important in the area of developing human capacities to manage creative organizations that are able to achieve unique successes. The Facebook and Apple companies of the current generation are representatives of what creative ideas can do for our world. These companies are examples of how creativity can benefit our society.

Technology companies in the Silicon Valley such as Facebook and Apple are motivated to create amazing enterprises that are beneficial to people around the world. The impressive reach of companies such of Google, Facebook, Microsoft, and Apple in almost all countries on the planet is unprecedented. This is an evidence of what the creative energies of individuals can accomplish. It shows the potential power of individuals and its effect on organizations in the area of touching the lives of people across the globe. Maslow presented the power of this creative potential to his audiences many years ago and his work continues to have influence on individuals and organizations. The attempt that Maslow made to present these ideas to people has paid off. It has contributed to changing the world in unique ways. It has shaped corporate thinking in ways never seen before. It has made individuals and organizations more creative. These ideas are still appealing to academicians and corporate executives who continue to use these ideas to enrich their professional lives and lead their organizations

to creative successes. People have the ability to do more if they can utilize available opportunities to maximize the utilization of their creative skills. Maslow lived this example. From a psychologist with little practice to becoming an educationist with a large audience, Maslow has impacted the lives of generations of people across the globe in many professions spanning from psychology to management.

Pricing. Keskin and Taskin (2015) noted that a major challenge facing the cloud computing market is how to price its products properly. Determining the appropriate pricing model for cloud computing is a challenge because cloud computing is still in its infancy and is continually being developed (Keskin & Taskin, 2015). A proper price model for the cloud environment will mitigate the concern of business leaders around effective pricing in the cloud and make them more comfortable operating in the cloud.

Disruption. Business disruption is another major challenge of operating in the cloud. Despite its attractions, cloud computing is considered the most disruptive technology in recent years (Hill & Doughtie, 2013).

Lack of trained IT personnel. The shortage of IT skills is driving local businesses to seek help in the cloud.

Lack of trust. The growing popularity of cloud-based computing resources is revealing security issues that must be addressed properly if the cloud can continue to provide critical technology support for small businesses that need this service (Lam, 2013). Trust has an important role in commercial cloud computing (Manuel, 2015). Trust allows users to select the best resources in a heterogeneous cloud infrastructure (Manuel, 2015). Factors that drive trust include availability, reliability, turnaround efficiency, and

data integrity. These factors determine whether a cloud resource can be trusted (Manuel, 2015).

Cloud users are increasingly demanding cloud service dependability and security, triggering the need for trustworthiness evaluation techniques to rise to become critical for cloud service selection (Ding, Xia, Zhou, Yang, & Shang, 2014). Trust evaluation models can be used to validate the characteristics of trust ambiguity and uncertainty, which are obstacles to building a strong security framework in the cloud environment (Li et al., 2014). For example, quality of service (QoS) indicators that show a cloud resource can be relied upon for its trust and capability are based on turnaround time. A multifaceted trust management system can provide a reliable method for selecting dependable cloud providers based on different attributes such as compliance, data governance, and information technology (Habib et al., 2014).

Adopting effective internal and external measures can enhance effective management of security risks and threats in the cloud and restore trust and confidence. It will make the cloud safe and secure. It will create a safe and secure environment where cloud computing as an emerging technology can grow and expand to reach businesses that desire to better manage technology costs in order to create financial value for their businesses. A safe and secure cloud environment will enhance the experiences of business leaders who operate in the cloud and provide an overall positive experience that can attract more businesses and motivate business leaders to move their business applications to the cloud in order to benefit from reduced technology costs that the cloud environment provides.

Data security. Security concerns in the cloud remains the main obstacle that discourages businesses from adopting cloud computing and deploying business applications to the cloud (Lemoudden et al., 2013). Although an advantage of the cloud are the lower costs of entry for smaller firms, cloud computing poses security issues at various levels, including the network, host, application, and data levels (Toader, 2015). Lam (2013) noted that cloud computing creates new challenges, especially security challenges, that must be addressed.

The major cloud security risks are accountability and data ownership, regulatory compliance, user privacy and secondary usage of data, multitenancy and physical security, infrastructure security, user identity federation, business continuity and resiliency, service and data integration, incidence analysis and forensic support, and nonproduction environment exposure (Lemoudden et al., 2013).

Data security and user experience have continued to be the two big challenges of cloud adoption (Alsahib et al., 2015; Ko, 2014; Sun et al., 2014). Security and privacy issues are a major concern especially when dealing with a multitenant cloud model (Shrivastava & Bhilare (2015). Data security in the cloud-computing environment is particularly important because the data are located at various geographical places.

Data security in the cloud is typically organized around data integrity, data confidentiality, data availability, and data privacy (Sun et al., 2014).

As the use of the public cloud for development and testing has grown significantly, hybrid cloud adoption has increased to support strategic and complex

initiatives. Business leaders have looked for multiparty systems integration to manage shadow IT.

Businesses that fail to understand the security concerns that exist in the environment where they operate can be creating a recipe for chaos. Business leaders have to be prepared for changes and challenges that could confront them in their business environment such as in a cloud environment. Chaotic theory is relevant for management to determine how their businesses will respond to various change situations. This will provide information that can enable management to determine the kind of process changes that can take their business to the desired level of operation. Cole (2014) wrote that chaotic theory is primarily a mathematical field of study even though it is applicable in other academic areas such as sociology and the social sciences. Defining chaos theory as the study of complex non-linear systems, Cole (2014) attributed such definition mainly to social complexity. Chaos theory does not emphasize disorder but rather it seeks to create an understanding for complicated systems in order to bring order around them. Understanding complicated systems is necessary for removing the mystery that surrounds such systems and provide people with the tools to study and understand the variables that make these systems behave the way they do. This will make it possible to design and implement measures that will make it possible to bring the best efficiencies out of these systems in order to run operations using these systems in such a way that value can be added to the operation. A good understanding of complicated systems will build confidence in its use and allow the system to be used to its best capacity. A good

understanding of the cloud environment will equip users of cloud computing resources to respond appropriately to challenges that exist in the cloud.

Uchenna et al. (2015) noted that data might not be secure in the cloud because of the failure of cloud providers to protect resources deployed to the cloud. Lack of data security has decreased the growth of cloud computing; preservation of data continues to plague the cloud-computing market (Alsahib et al., 2015). Fear of attacks from malicious hackers and data breaches have prevented many business leaders from deploying sensitive data to the cloud (Uchenna et al., 2015). Several of the features that make cloud computing attractive have revealed new security issues when businesses move their businesses applications to the cloud (Rai et al., 2013).

Internal control measures. West et al. (2014) suggested that organizations can overcome the security challenges by managing the associated risks. Security concerns in the cloud, such as emerging network attacks and intrusions, can be prevented with the implementation of the appropriate security measures (Gu, Wang, Zhang, Zhong, & Ni, 2014). Several remedies have been proposed.

Saravanan and Rajaram (2015) suggested that businesses adopt service agreements that provide coverage and protect them against security issues. Service agreements are formal, negotiated agreements between service providers and customers that contain the terms of the quality of service and responsibilities expected from each party (Saravanan & Rajaram, 2015). A proper service agreement should identify customer needs, provide a model for understanding the service, simplify complex issues, reduce conflicts, encourage dialog on disputes, and eliminate unrealistic expectations

(Saravanan & Rajaram, 2015). Service agreements can be used as an internal control measure to equip businesses to overcome security challenges in the cloud (Saravanan & Rajaram, 2015). Cloud service agreements allow businesses to outline their contractual expectations of cloud service providers, and this acts as a form of protection against security issues.

Kadirov and Varey (2013) noted that communication is essential for social systems to function effectively. Businesses should improve their communication efforts to ensure a productive interaction and develop synergies to help businesses to thrive in challenging times. According to Baloh, Desouza, and Hackney (2012), to build knowledge management systems, companies can establish corporate libraries, build intranets, share best practices, build databases, lead training programs, install groupware, and create virtual organizations. Lnenicka (2013) noted that the cloud environment could be made safer and more secure if business software used in the cloud were tested using cloud-testing tools such as multilayer testing, service level agreement-based testing, large scale simulation, and on-demand testing.

Research can assist business leaders to identify powerful solutions that can support financial value creation for their operations. Pembele and Ivanov (2014) explored the reasons why businesses turned down research and argued that this action was unfortunate since research was important for both small and big organizations. Through research, organizations could evaluate how they were doing and possibly determine ways that they could improve their operations.

To succeed in the cloud, business leaders should reconfigure their security systems to meet the challenges of the cloud. Businesses can overcome several of the security challenges in the cloud by seeking a reliable and trustworthy cloud service provider that uses a multifaceted trust management system architecture to provide cloud computing services (Habib et al., 2014). Good response time and the minimization of idle time of servers are practical security measures that can make the cloud more secure (Gu et al., 2014). These security measures bring optimization to existing systems and reduce the risk of unauthorized access.

Liu et al. (2013) identified large gaps between most algorithm task designs and actual service needs, which presented challenges for cloud users. For business leaders who plan to move to the cloud, a new security approach is required to leverage contracted brokering solutions (Demirkan & Goul, 2013). An internal control measure for overcoming the security challenges of cloud computing is to implement management processes to enforce security policies among participating cloud systems (Gouglidi, Mavridis, & Hu, 2014). Liu et al. (2015) stated that providers of cloud services have the responsibility ensure that service applications, cloud software, and the physical location of the cloud are secure.

In addition, cloud service providers must ensure that their clients also have secure cloud systems (Liu et al., 2015).

External control measures. External strategies for overcoming security challenges in the cloud include the *defense in-depth* and *honey pot defense* strategies. The defense in-depth strategy is based on the idea that individual security controls are

insufficient at addressing the security issues in the cloud and that multiple reinforcing mechanisms and controls should be adopted to provide a complete and robust security solution (Lemoudden et al., 2013). The honey pot defense strategy is based on the idea of using a decoy system loaded with fake files to attract and trick intruders to enter the system in order to learn about the moves of the intruder (Lemoudden et al., 2013). This strategy facilitates the development of adequate security measures to protect the real system (Lemoudden et al., 2013). This measure can distract intruders from causing real damage and allow cloud users to work in a safe environment. These measures help address security concerns and build trust with business leaders (Lnenicka, 2013).

Approaching the solution for the security risks in the cloud from a system theory perspective allows for the development of a comprehensive solution that can effectively address the needs of the entire cloud system. According to Von Schlippe and Frank (2013), three types of systems that were necessary for human lives included biological system, psychic system, and social system. These systems operated as a structure of processes where a network of interactions between the elements brought together the activities of the elements that operated in these systems through communication to achieve results that were greater than the sum of the individual units. A system environment is valuable for businesses to communicate with other participants in the system to build relationships that can enable businesses to develop capacities that can facilitate their growth. Startup business especially need this collaborative interaction at the critical stage of their growth since at the startup stage, businesses are new to the system and therefore need support to build networks that can position them to grow. A

good understanding of the system within which a business operates is important for organizations to build networks that can ensure their survival and facilitate their growth and success.

An external measure that can be used to overcome security challenges in the cloud is the implementation of an appropriate legal and regulatory framework, which can offer security protections from a legal standpoint. New regulatory and legal challenges have placed policymakers under pressure to update laws that relate to data ownership and privacy (Cătinean & Cândea, 2013). Charlesworth and Pearson (2013) proposed a robust legal framework designed to meet the needs of the cloud computing community. However, effective legal solutions to address cloud security concerns need to be structured to make them proactive and not reactive in responding to security issues in the cloud (Charlesworth & Pearson, 2013). The enhancement of regulatory frameworks to favor cloud technology could attract more users to the cloud.

Another external measure proposed to overcome security challenges in the cloud is external-facing or client-side security of cloud computing services (Liu et al., 2015). This type of security requires clients to distinguish their security systems from competitors.

In sum, these proposed external measures could create proper balance in the security systems, strengthen the security around the cloud environment, and help business leaders feel safe and secure when moving business applications to the cloud.

Juels and Opera (2013) observed that security concerns can restrict enterprise migration to the cloud. Creating solutions for this situation involves thinking beyond data

encryption to address confidentiality of data processes and to protect against tampering, corruption, and loss of viability (Juels & Opera, 2013).

The cloud environment holds many opportunities for business leaders who desire to maximize their computing resources. A private and secure cloud environment could allow sensitive data to be stored and processed in the cloud, boost consumer trust, and increase cloud-generated revenues (King & Raja, 2013). The opportunity exists to add value to cloud-based computing when the cloud environment is made safe and secure.

Financial Value

Definition of Financial Value

Financial value refers to the monetary, material, or assessed worth of an asset, good, or service. The study followed the accounting definition of value in which value is expressed in monetary terms. For example, the financial value of a business could be $1 million.

Models for Creating Financial Value

Cloud users enjoy financial value because of the way the cloud uses computer resources. Cloud computing allows companies to develop competitive strategies that can increase a company's financial value and add to the company's innovation capabilities (Sari & Kurniawan, 2015). Cloud computing makes information technology resources, platforms, and services available at an unlimited scale for everybody, everywhere, and anytime (Versick & Tröger, 2014). Cloud computing is changing the way industries and enterprises do business.

The cloud workflow system facilitates the automation of distributed applications with the utilization of a novel cloud infrastructure (Wu et al., 2013). Cloud computing is a market-oriented business model with cost savings at its core. The use of cloud applications as models for creating financial value is gaining ground (Steinbauer et al., 2014).

Task scheduling strategies. Cloud computing uses scheduling strategies to ensure the efficient utilization of technology resources and thereby create financial value. Cloud computing grows through efficient task scheduling. Optimal task scheduling is especially important in the cloud environment in which businesses seek cost savings in their operations. Optimal task scheduling has become an important matter in pay-and-use models of cloud computing (Sharma & Nair, 2014). Optimal task scheduling allows business leaders to manage their technology infrastructures to make the best use of low and high usage times.

The handling of technical aspects of task distribution and management of business priorities can present challenges for cloud users; however, these areas can be managed with the right strategies. Cloud-based software development provides significant value through reduced IT acquisition and operating costs. Mohan and Satyanarayana (2015) noted that efficient task scheduling strategy was necessary to facilitate optimum utilization of cloud resources.

Reduced human resources and equipment costs. Through cloud computing, businesses are able to create financial value by avoiding having to pay for essential IT personnel and computing equipment when these capacities are periodically needed. By

operating in the cloud, businesses build efficiencies into their operations because they pay for technology resources on a per-use basis and this minimizes wasteful IT expenses, which improves the bottom line (Gonzalez & Smith, 2014). Cloud computing helps IT systems employ greater automation, benefit from reduced costs, and provide increased service levels (Versick & Tröger, 2014).

Flexible operations. The use of cloud applications provides flexibility to businesses, thus creating financial value. Cloud computing provides a scalable and virtualized resource as a service over the Internet (Xu, 2013). Cloud computing offers an opportunity to allocate and deallocate computing resources easily as well as to provide better utilization of underlying hardware while reducing upfront costs. This flexibility has motivated many business leaders to adopt cloud computing (Steinbauer et al., 2014). For example, by moving to the cloud and embracing a pay-as-you-go model, the Bank of Australia was able to cut infrastructure and maintenance costs by 40% and reduce time to market for new applications by several weeks (Schlagwein, Thorogood, & Willcocks, 2014). As a model for creating financial value, cloud computing utilizes the flexibility of on-demand computing resources leveraged with lower technology cost to build a product offering that enhances the experiences of its increasing user base.

Transformed manufacturing. As an emerging technology, cloud computing has improved the manufacturing industry in ways not seen in many years. Cloud computing has transformed the traditional manufacturing model, aligning product innovation with business strategy, and created intelligent factory networks that enhance effective collaboration (Xu, 2013).

Optimization. Pembele and Ivanov (2014) encouraged organizations to seek optimization. They defined optimization as the process of orchestrating the efforts of all components of the system toward achieving the defined goals. Optimization should be the aim of business leaders who wish to maximize their interactions within their operations in order to improve their operations.

Adaptability. The varied uses of cloud computing resources show the adaptability of cloud computing; adaptability enhances financial value. For example, fields such as medical imaging benefit from the scalable storage and computing resources that cloud computing provides. Physicists use cloud computing for simulations, exploiting computing clouds as scalable resources for high-performance computations. Educators have been exploring the multiple uses of cloud computing. Educators in the field of physics have used cloud computing to study and teach physics problems (Steinbauer et al., 2014). These varied uses of cloud computing resources show the adaptability of cloud computing.

Education for business leaders. A necessary foundation of an effective model for producing financial value is a well-structured educational path for business leaders. This educational path can be achieved by promoting human development centered on a creative skill-producing educational system. Cerneviciute and Petkute (2013) considered human development from a practical angle, arguing that the current education system should be transformed to generate creative skill capacities capable of supporting the growing knowledge-based economy. Technological forces are moving the world economy into a knowledge-based era, and traditional ways of thinking are not sufficient

to support this new economy. The world has to become more creative at how it addresses and solves existing problems. Creativity is not merely a personal issue but it is an important societal issue. When the citizens of a society are creative, that society benefits tremendously because no matter how challenging the problems that such society faces, creative citizens can think outside the box and come up with innovative ideas to provide solutions. Creativity therefore has economic value. Through appropriate education, business leaders learn the creative skills needed to develop appropriate models and create financial value in the cloud. This will provide a better understanding of cloud computing as a model for creating financial value. As an emerging technology that adds value to business operations, cloud computing can be considered a model rather than a specific technology (De Meijer & Brown, 2014). For example, when certified public accountants (CPAs) move to the cloud, they work with real-time data, which adds value to the operations of the businesses of their clients (Nixon, 2015).

Revenue maximization. By pursuing revenue-maximizing allocation within a limited-capacity constraint and establishing long-term business relations with clients, businesses can optimize the potential of cloud computing (Mohaupt & Hilbert, 2013).

Innovation. Cloud computing has become the driver of innovation in recent years, supporting startup businesses such as Dropbox and Instagram, as well as established businesses such as Samsung (Ding et al., 2014). Nixon (2015) called on professionals who support businesses to embrace migration to the cloud, reinvent their business models, and seize the opportunity that the cloud environment provides. When business leaders push for increased capability and decreased cost, innovative ideas such

cloud computing become viable strategies to reduce costs (Chan, 2013b). The desire for efficient businesses processes drives business innovation.

Cloud computing has created business opportunities for both small and medium sized businesses (Werfs, Baxter, Allison, & Sommerville, 2013). Cloud computing resources cover the software, platforms and networking applications, comprising a virtual model with scalable and elastic computing capabilities (De Meijer & Brown, 2014). Mohaupt and Hilbert (2013) discussed the integration of information systems in cloud computing in order to establish long-term customer portfolios. A next-generation, distributed-system architecture provides on-demand computing and storage resources in a scalable and self-manageable way (Versick & Tröger, 2014).

The adoption of cloud resources continues to grow as more business leaders discover the power of the cloud to support financial value creation for their businesses.

Minority Small Business Owners

The availability and convenience of cloud-computing resources makes cloud computing accessible to small business owners. The cloud model offers inexpensive technology solutions that reduce upfront costs for small and medium-sized enterprises. Fixed IT costs become variable costs that can be managed more effectively to optimize computing resources (Kelmendi, 2013). Cloud computing creates a unique business opportunity for small businesses, especially from a cost management perspective.

The opportunities provided by cloud computing is especially valuable for African American business owners. Historically, African Americans have been economically disadvantaged, and the pathway to successful entrepreneurship for African Americans

has been a challenge. Assisting African American business owners by providing them with the framework to develop and build successful businesses would be a laudable contribution to social change. Social change through entrepreneurship could have a great impact for African Americans.

Minority small business owners, especially African Americans, face unique challenges as they struggle to use emerging technology such as cloud computing to support their businesses. Approximately 11.8% of the U.S. population is African American, yet only 5% of small business owners are African Americans (Harris et al., 2011). Receiving the appropriate supportive environment could help minority groups such as African Americans benefit from the advantages that cloud computing provides and use such opportunities to grow their small businesses. The cloud offers an opportunity for African Americans to operate successful businesses at lower technology costs.

Even more disheartening was the sad statistics that over 90% of African American business owners did not have paid employees. African Americans have a long way to go in establishing viable businesses that employ people.

Many African American businesses underperform. In 2002, over 50% of African American businesses generated under $10,000. This is a sad trend since such an annual income cannot support anyone in America. It is below the federal poverty level. Student entrepreneurs can bring new energy to the business world. Only 10.9% of African American business owners had some college education and this can be improved.

Entrepreneurship education can encourage and prepare those who want to become entrepreneurs and give them the knowledge they need.

Several challenges exist that make it difficult for African Americans to succeed as entrepreneurs, including the lack of social capital. I do not assume that it is easy for anyone to succeed as an entrepreneur. However, I believe that with the right strategy and knowledge, virtually anyone can succeed as an entrepreneur including African Americans. The issue of social capital is problematic for blacks but can be overcome. Cochrane (2010) took a look at African American entrepreneurs from a social capital perspective and concluded that there is still hope. Using the foundation of social capital theory, the author sought to test the hypothesis whether social capital determined whether African American chose to operate in the formal or informal economies.

Cochrane (2010) defined social capital as the ability to utilize social and business networks for personal gain. He also defined an entrepreneur as someone who owned a business, was involved with micro-enterprise, worked for money outside his occupation, and worked for money when the opportunity presented itself. Entrepreneurs look for opportunities and make the best out of them. He wrote that social capital could enable entrepreneurs to access resources, information, and secure cooperation and trust from others. With African American self-employment at an all-time low, anything to boost the trend favorably will be welcome.

African Americans face many entry barriers as they enter self-employment. Lofstrom and Bates (2013) noted entry barriers pertained to lack of personal wealth and human capital resources. Many U.S. African American households operate under the

federal poverty level. Many are not homeowners and therefore cannot build equity in a home. In addition, high unemployment and underemployment exists in the African American community. These factors make it difficult for African Americans to build personal wealth to invest in a business.

The African Americans who find the resources to enter self-employment face the challenges of surviving in their chosen industries. Lofstrom and Bates (2013) identified important elements that underlie viable new business creation. First, the business owners need to be capable entrepreneurs who have the human capital needed to operate a successful venture. Second, they need access to sufficient financial capital to launch the venture, and third, they need access to markets where their products and services can be sold (Lofstrom & Bates, 2013). African American business owners often have fewer resources to win bids in a competitive environment. Without sacrificing efficiencies, minority-owned businesses should receive consideration when it comes to distributing public contracts.

Minority small business owners could benefit from the low costs and convenience associated with the cloud environment (Alijani et al., 2014). Cloud computing provides an opportunity to combine information technology strategies with overall business strategies (Beaty, 2013). Cloud computing allows business owners to evaluate their information technology needs and determine systems that can deliver the computing needs of their organizations at the best possible cost.

From startup businesses to established businesses, cloud computing is being used to provide better service experiences for customers around the globe. The popularity and

increasing use of cloud is mainly driven by lower hardware and licensing costs. In addition, cloud technology is scalable and it allows users to work from a computer with internet access (Ding et al., 2014). Reasons why small businesses move to the cloud include availability, fast and easy data sharing capability, reliability, safe and secure data management, and cost effectiveness (Alijani et al., 2014). Using a hybrid cloud computing model, businesses with existing IT infrastructure can use their private resources for some of their computing needs but burst into the cloud when local resources are insufficient and utilize the efficiencies that the cloud environment provides (Guo et al., 2014). This helps businesses to thrive.

Understanding the business environment. Business leaders who lack a full understanding of their operating environments could fail to develop appropriate survival strategies to overcome business challenges. A good understanding of their business environments could equip business leaders to understand the security challenges that exist in environments such as the cloud. This could enable them to develop the appropriate strategies to overcome these security challenges and succeed. According to Shin, Park, and Lim (2013), business leaders have profound influence on organizational outcomes. Their characteristics could influence how they respond to opportunities and overcome challenges.

Gavetti et al. (2012) discussed the influence that behavioral firm theory had on organizational theory, strategic management, and socio-scientific inquiry as they operated within open systems. The authors established the importance of theory to today's management. In order for organizations to succeed, they needed to have cognition to be

aware of what was going on within their external environment. Such awareness would prepare the organization to respond effectively to changing environmental requirements and thrive even in difficult environmental challenges.

Von Schlippe and Frank (2013) examined the theory of social systems as a framework for understanding how family businesses grew and succeeded. The authors wrote that the modern social system did not see organizations as merely parts of a system but considered viewing the basic elements of a social system as underlining acts of communication. The various components of the social system including family, businesses and owners provide a basis for identifying a communication pattern and assert that each system operates according to a functional logic. Specifically, families operate relationship communication, businesses operate decision communication and owners operate a legally secured communication. An understanding of the functional logic and structures that underlie these systems is important to develop measures that can enable a better operation of businesses as they operate in the open system.

Minority business leaders must be made aware of the effect that their characteristics can have on minority startup businesses. Such knowledge will help minority business leaders to pursue actions that will enable their businesses to interact well with other elements within the larger business system in order to create opportunities that will allow minority startup businesses to survive and grow.

The cloud technology is changing the outsourcing landscape for businesses. It is offering businesses newer opportunities as they explore dynamic multisourcing models. It creates innovative business outcomes that drive strategic sourcing decisions (Chan,

2013a). This model has turned fixed IT costs into variable costs since computing resources are not paid for on an as used basis (Kelmendi, 2013). It assists businesses to better evaluate cost options.

When business leaders consider the social implications of their operations, it benefits society. The savings that cloud computing provides through lower technology costs can be used to support programs that make society better. Prieto and Phipps (2013) introduced social entrepreneurship as an approach that could be used to solve complex business problems. They mentioned socially minded entrepreneurs such as Earl Graves, Marcelo Claure, and Oprah Winfrey as using this method to tackle societal problems such as access to education, poverty, and unemployment. They encouraged educators to motivate undergraduate students by providing them with the tools that would make them become tomorrow's innovators and social entrepreneurs. Prieto and Phipps (2013) mentioned the creation of the Office of Social Innovation and Civic Participation under the Obama administration to allow citizens to take advantage of these programs to support their business initiatives.

Wang (2011) took a look at African American self-employment in the Charlotte Metropolitan area and assessed the challenges they faced. They used Public Usable Microdata Samples in 2000 to examine self-employment of blacks. They noted that the ethnic diversity, immigration history, and the economic structure in the area provided unique challenges and opportunities for minorities to start up and grow their own businesses. They concluded that minority groups could cooperate to overcome their business challenges and maximize the business opportunities available to them in order to

succeed in their businesses. It is worth noting that minority groups cannot always expect external help to solve their problems for them but they can work together to solve their own problems.

Other ways that black businesses can be helped to grow includes funding black education. An issue that continues to challenge black education is the lack of resources to provide education to black people. Historically black universities have risen to fill the vacuum with the sole goal of providing valuable education to black people. The challenge that these historical black universities face is inadequate funding. In an effort to address the resource problem for public Historically Black Colleges and University (HBCU), the presidents of these colleges have been called to become directly involved in the fund raising effort. Williams and Kritsonis (2011) wrote that the presidents of these universities were increasingly called upon to develop an entrepreneurial spirit that encouraged fundraising from the private sector. This call comes from the realization that fundraising is no longer the responsibility of development officers but that donors expect direct relationship with the presidents of these universities. The authors were unhappy with the failure of black university presidents to become engaged in fundraising efforts for their schools and called on them to become directly involved. They found that the direct involvement of black university presidents would greatly increase the resources available for black education.

Williams and Kritsonis (2011) concluded that the survival of black universities and black education depended on their ability to raise funds to support their operations. It was therefore necessary for them to develop a comprehensive fundraising effort to raise

more funds. They also have to identify institutional needs, develop plans to achieve those needs, begin to implement those plans, and actually execute these campaigns to ensure their survival.

Existing literature has shown a conceptual framework for effecting social change for African Americans. This conceptual framework is founded on recognizing opportunities and putting them to favorable use as well as overcoming many of the identified challenges to find practical solutions that can solve the problems of African Americans. Society is being called upon to support the effort to effect social change for the African American community. The black community still has the potential to improve its social and economic situation. With the appropriate support from society, African Americans can effect social change in their communities through entrepreneurship.

Current literature supports the viability of social change for minority groups especially African Americans. Despite the many challenges that African Americans face socially and economically, with the provision of needed resources, opportunities still exist for effecting social change within African American communities through entrepreneurship.

The availability of appropriate connections can help members of minority groups access much-needed capital to start businesses (Casey, 2012). New concepts such as network interventions have been suggested to stimulate and create an environment that would be conducive for minority businesses to grow and develop (Casey, 2012). Specifically, Casey explored the use of social media to access financial resources. The availability of upward connections facilitated access to capital, and business owners who

did not have such connections were deprived access to much needed resources (Casey, 2012). Low-wealth minority entrepreneurs were therefore at a disadvantage in accessing financial resources through social networks (Casey, 2012).

According to Casey (2012), minority business owners usually depend on formal sources for their capital, such as bank loans, credit cards, nonbank loans, finance companies, equity investments. They also use informal sources such as personal funds, loans from family and friends, and loans from colleagues (Casey, 2012). These sources are often used up quickly, which drastically reduces minority business owners' access to capital (Casey, 2012). In addition, particular characteristics that make it challenging for minority business owners to obtain capital include low levels of management experiences and few years of industry experience (Casey, 2012). These challenges can be overcome if minority business owners inform themselves of available options to network within their environments to gather the resources they need to build their businesses. Effective interaction within the open system is necessary for minority businesses to build and grow their businesses.

Despite the many challenges that exist within organizational and social systems for minority businesses, opportunities also abound for minority businesses if the appropriate networks can be built to manage proper interactions that can allow minority businesses to access available resources. An approach to overcome challenges within organizational and social systems is to know how to manage risk while maximizing opportunities. Minority business owners may continue to face shortage of capital and other resources needed to build their businesses. The difference between a successful

business and a failed business will be the ability to overcome these challenges and take advantage of available opportunities. Minority business leaders who recognize the opportunities within organizational and social systems and implement measures to utilize these opportunities will be better positioned to grow their businesses and become successful.

Race is another challenge that confront minority business owners as they seek to utilize emerging technologies such as cloud computing to create financial value for their businesses. Race is still a problem in America, and racial issues should not be considered a thing of the past (Cain, 2012). The importance of this argument is that as African Americans look forward for social change to be effected in their communities, issues that worry them should be addressed properly and not classified as unimportant. African Americans have historically had very unpleasant experiences on racial issues and race needs to be addressed in any effort that seeks to bring social change to African American communities. The goal here should not be to remind African Americans of the pain they suffered in the hands of slavery but rather to provide avenues for collaborative discussions with people of all races to better understand different cultural perspectives and accept different ethnic groups for who they are. People thrive better in diversity and not in division. Racial discussions should not be to glorify the perpetrators of such a horrible system but to remind mankind of the evils that men are capable of if laws are not available to provide protection to vulnerable groups. Society should be equally interested in the wellbeing of every racial group and men must be each other's keeper. When we learn to live in harmony, everything is achievable on the platform of teamwork.

Cain (2012) wrote, “Rejecting racism involves embracing self and collective dignity, equality, beauty, and empowerment” (p. 201). This beautiful quote touches the heart of racial discussions. Racism discourse should be viewed as an avenue for discussing how different ethnic groups can respect and work with each other. Respect for other ethnic groups offers a sense of dignity and this is an important driver for effecting social change. Recipients of social change should not be viewed as people who are failures or incapable of helping themselves. This view will negate the essence of the very help that is being brought to the people. Social change should rather be viewed as a collective effort that brings good to society as a whole. Such a view can be possible when different races have respect for each other. Social change thrives best in a social respectful environment.

Review of Conceptual Framework and Methods

In this section, I examine and analyze the literature on the conceptual framework that underpins the study. This section of the literature review provides the philosophical framework anchoring the methods used to execute the research. In addition, I provide an analysis of the assumptions that framed the methods.

Conceptual Frameworks

The study was grounded generally in the conceptual framework of financial value creation from the perspective of the Modigliani-Miller theorem (Levinsohn, 2003) on suitable capital structure using debt and equity, and Brealey and Young’s (1980) concept of financial leverage. These frameworks were applied from the perspective of how they facilitate the creation of financial value.

Similar to the view advanced by Modigliani and Miller, evolving technologies such as cloud computing have big data prospects and challenges that can be managed and overcome to allow businesses to show progress (Moorthy et al., 2015). These are made possible through cloud resource deployment. The result is the benefit of cloud-based deployments and access such as rapid elasticity, on-demand self-service, and high performance with low initial capital investment (Shrestha 2014). This conceptual framework supports the decisions of businesses to move to the cloud to save costs on upfront capital investments in technology infrastructure.

The development of application service providers and cloud computing has provided businesses with the framework to replace their in-house IT systems with more robust alternatives that allow them to access more technology resources at lower cost (Li et al., 2013). Major cloud-computing architectures including Cisco Cloud Reference Architecture Framework, IBM CCRA, National Institute of Standards and Technology (NIST), and VMware's Architecting vCloud. These important frameworks make cloud computing possible (Zota & Petre, 2014). Cloud service providers offer data storage, computing processes, document sharing, and management information system services that allow businesses to use the resources available in the cloud efficiently (Li et al., 2013). Cloud computing allows users to leverage third-party cloud providers instead of straining limited in-house IT resources (Chan, 2013).

According to a survey, by 2015, 16% of Hong Kong companies were expected to outsource their IT infrastructure to the cloud (Chan, 2013). The spread of cloud technology has touched even government operations. Governments around the world

have deployed some of their services in the cloud (Kelmendi, 2013). The cloud computing model has made it possible for such operations to cut the costs for many businesses, especially in the area of upfront costs (Kelmendi, 2013).

An important framework that supports cloud computing is quality of service (QoS). QoS is a critical element that ensures the commercial success of cloud platforms (Vilaplana et al., 2014). Using performance-measuring indicators such as arrival rate of customer services and the number and service rate of processing services, the QoS can be measured to determine the efficiency of cloud operations (Vilaplana et al., 2014). Queuing theory and open Jackson networks guarantee a certain level of performance in line with waiting and response times of these networks (Vilaplana et al., 2014). These frameworks support cloud operations.

The work of Modigliani and Miller (Levinsohn, 2003) on determining the most effective capital mix for businesses ties in well with Brealey and Young's (1980) work on financial leverage. Brealey and Young's (1980) framework supports the subscription-based model for paying for business costs similar to the opportunity that cloud computing provides for businesses to utilize computing resources on a pay-per-use basis. The lower cost attraction has drawn many businesses to the widespread adoption of pay-as-you-go cloud computing services to handle workload fluctuations (Guo, Sharma, Wood, & Sahu, 2014). The opportunities in the cloud are founded on Brealey and Young's conceptual framework of creating financial leverage by utilizing a subscription-based financing model, which frees up cash for businesses and creates financial value that positions businesses to succeed.

Discussions, Analysis, and Conclusions

A thorough examination and synthesis of the literature provided a comprehensive overview of the issues related to determining the financial value of cloud-based business applications. Previous research has showed that cloud computing is a growing phenomenon and that many businesses have moved their operations to the cloud to enjoy the cost savings that the cloud environment provided. However, the excitement that motivated business leaders to move business applications to the cloud was often eroded by concerns about cloud security.

Even though moving to the cloud makes business sense for enterprises, the experiences of business leaders are mixed in terms of finding the balance between the costs savings derived from cloud operations and managing security concerns that threaten data hosted in the cloud. Babu et al. (2013), Chan (2013), and Howell (2015) opined that experiences of business leaders in the cloud were positive and the cloud environments provided opportunities for business leaders to create financial value for their businesses through costs savings. These authors supported the view that the cloud experience was positive for business leaders, and they encouraged more business leaders to move to the cloud.

Other authors, such as Hassan et al. (2014), Holubek and Floyd (2013), Rajendran (2013), and Schlagwein et al. (2014) shared a view that the cloud provided positive experiences for business leaders because cloud computing enabled business leaders to reduce technology costs. These authors were of the opinion that the cloud offered pleasant experiences that business leaders could enjoy from a technology cost-reduction

perspective. The authors provided strong evidence to support their positions. They used practical illustrations and cited real-world examples involving companies from diverse industries including manufacturing, retail, and health organizations that successfully reduced technology costs by moving their business applications to the cloud. In fact, Cătinean and Cândea (2013), Shrestha (2014), and Toader (2015) provided evidence to confirm that moving to the cloud offered opportunities for businesses to become profitable through managed technology costs, and this was an added incentive for business leaders to move their business applications to the cloud.

Not all the researchers reviewed offered positive views of the cloud. In fact, some authors suggested that the cloud experience was one burdened with continuous worry over security threats. They cautioned that business leaders who chose to operate in the cloud should expect to deal with security threats such as data breaches, data losses, insecure interfaces and APIs, malicious insiders, account or service traffic hijacking, abuse of cloud computing, shared technology vulnerabilities, denial of service, and insufficient due diligence (Lemoudden et al., 2013). Ballabio (2013), Lam (2013), and Lemoudden et al. (2013) believed that security risks have the potential to negate the experiences of business leaders who operate in the cloud. Alijani et al. (2014), Rai et al. (2013), and Sun et al. (2014) offered similar views. These authors confirmed business leaders' concerns that their data would be compromised by unauthorized users who might not have good intentions and could break into the cloud based networks and compromise the data stored in the cloud through data breaches.

Throughout the literature review process, I found authors who offered diverse viewpoints on the definitions and implications of cloud computing for businesses. Paul and Dangwal (2014), for example, defined cloud computing as a set of hardware, software, networks, storage, and services combined in an interface to deliver cloud computing services. Cloud computing uses central remote services to maintain data applications. Park and Jeong (2014) noted that cloud computing enabled ubiquitous, convenient, and on-demand access to a shared pool of configurable computing resources through networks, services, storage, applications, and services that could be used with little management effort on the part of the user. The service provider bears the burden to ensure the computing service is working properly and the user pays for using the service.

Technology infrastructure is an important element of knowledge management process and can position an organization to build competitive advantage (Sari & Kurniawan, 2015). Cloud computing offers a cost-effective alternative by improving utilization and decreasing administration and infrastructure (Alijani et al., 2014). With rapidly changing technology, infrastructure is easy to manage, record, and transfer with the availability of a robust computing system such as the environment that cloud computing provides (Sari & Kurniawan, 2015). The essential characteristics of cloud computing are on-demand self-service, broad network access, resource pooling, rapid elasticity, and measured service (Sari & Kurniawan, 2015). How a company implements technology infrastructure provides an effective way to compete (Sari & Kurniawan, 2015). These diverse views on cloud computing from the literature in large part supported

the overall conclusion that cloud computing allows businesses to manage and reduce operational costs.

The literature review provided a solid conceptual foundation for the study. I explored both the positive and negative aspects of cloud computing from a transcendental perspective and critically reviewed the literature without bias. Previous researchers showed that cloud computing provided positive experiences to business leaders through cost savings and reduced technology costs. Critics pointed out that security risks in the cloud must be managed to make the overall experience in the cloud positive.

The comprehensive and thorough literature review revealed both the opportunities and challenges that exist within the cloud environment and highlighted areas where theorists agreed and disagreed with respect to factors that influenced business leaders' decisions as they moved their operations to the cloud. In addition, the literature showed that minority business owners such as African Americans could take advantage of the costs savings that cloud technology provided to effect positive social change in their communities as they become empowered to grow their businesses. The literature serves as a compass and shows the direction for future research and policy framework on cloud computing from the perspective of creating financial value for businesses. Previous researchers seem to support the notion that cloud computing is an emerging technology that offers opportunities for creating financial value for businesses and that business leaders have an overall positive view in the cloud.

In Chapter 3, I offer a detailed discussion on the research design used for the study. This discussion covers the research approach, sample and population, method of

data collection and procedures, data management procedures, method of data analysis, ethical considerations, the researcher's role, researcher's bias, and participant protections.

Chapter 3: Research Methods

Introduction

In this chapter I discuss the research design and describe the research sample and population, data collection method and procedures, data management procedures, data analysis method, and ethical considerations. The questions that guided the study are:

1. What are the lived experiences of business owners who operate business applications in the cloud in terms of creating financial value despite security concerns?
2. What do business owners perceive as opportunities for businesses to move their business applications to the cloud?
3. What do business owners perceive as challenges in moving their business applications to the cloud?
4. How does operating a business application in the cloud create financial value?

The findings of this study may lead to an understanding of the lived experiences of business owners as they operate business applications in the cloud in order to save technology costs and create financial value for their businesses. In addition, given the study's focus on security concerns of operating in the cloud, the findings show how security concerns affected the experiences of business leaders as they operated in the cloud.

Design of Study

In this section, I describe the research design used for the study, including the method of inquiry that grounded the study, the sample and population, methods of data

collection and analysis, the structure of the research report, issues of ethics and quality, the role of the researcher and researcher's bias, and participant protections.

Theoretical Method of Inquiry

In this study, I used a phenomenological approach in the qualitative tradition. Research methods can be differentiated by the philosophical and theoretical assumptions that underpin them. These philosophical assumptions could be (a) *ontological*, emphasizing reality or the nature of reality; (b) *epistemological*, emphasizing the relationship between the researcher and what is being studied; (c) *axiological*, emphasizing the values that drive the research; (d) *rhetorical*, emphasizing the language of the research; or (e) *methodological*, emphasizing the processes and procedures used to conduct the research (Apori-Nkansah, 2008). The methodological philosophical assumption was prominent in this study.

Three chief research methods are used in research: quantitative, qualitative, and mixed (Maxwell, 2012). Maxwell (2012) defined quantitative research as an analysis of the association among variables. The use of quantitative research dates back to the 19th century, and it expanded into the late 20th century during which period the principal worldview on research was postpositivist (Maxwell, 2012). Quantitative research is conventionally experimental or quasi-experimental in design. In the social sciences, quantitative researchers often rely on surveys to collect their data.

Maxwell (2012) defined qualitative research as an investigation of the meaning that people or groups give to a social phenomenon. Qualitative research has become more popular since the 1990s and is therefore a more contemporary research method,

compared to quantitative research (Maxwell, 2012). Qualitative methodology is motivated by the constructivist, advocacy, and participatory worldviews, and relies on the experiences of participants. The main qualitative research approaches include ethnography, grounded research, case studies, phenomenological research, and narrative research (Maxwell, 2012). Phenomenological researchers strive to understand the essence of human experience of a phenomenon by means of the explanations provided by participants (Maxwell, 2012). A phenomenological approach comprises studying a limited number of participants through lengthy and deep engagement in order to provide patterns and relationships of meaning (Maxwell, 2012). In phenomenological research, the investigators subdue their own experiences in order to comprehend the experiences of the research participants (Maxwell, 2012).

Mixed-method research is a less popular research method compared to quantitative and qualitative methods. According to Maxwell (2012), mixed methods began in 1959 when Campbell and Fisk implemented multiple methods to examine the validity of psychological traits. Their effort encouraged other researchers to mix methods to collect data and design research (Maxwell, 2012). A standard example of the use of mixed methods in a study is conjoining qualitative observations and interviews with quantitative surveys.

When outlining differences among the three chief research methods, Maxwell (2012) noted that qualitative methods typically use open-ended questions, and quantitative methods generally use close-ended questions. The examination of qualitative data is subject to the researcher's understanding and has a flexible configuration; in

contrast, the investigation of quantitative data is statistically motivated and has a fixed structure involving hypothesis testing (Maxwell, 2012).

The same research problem can be investigated from a qualitative or quantitative perspective depending on whether the researcher is more interested in exploring the depth of the problem as a phenomenon (qualitative methodology), or in studying the associations of variables to assess their influences on a phenomenon (quantitative methodology). When evaluating whether to use a qualitative or quantitative research methodology, the researcher will often use the context of the research questions for guideance (Maxwell, 2012). A qualitative research design was appropriate for this study because I sought to understand a phenomenon by exploring lived experiences of that phenomenon.

Justification for Using Phenomenology over other Qualitative Approaches

Maxwell (2012) noted that the phenomenological approach is designed to gather the essence of human experiences of a phenomenon, as described by participants. I examined a number of qualitative frameworks during the design phase of this study to determine a suitable method. These qualitative approaches included narrative research, phenomenology, grounded research, ethnography, and case studies. The selection of the appropriate method depends on the purpose of the study and the types of data that must be collected (Maxwell, 2012).

Narrative research approach. The goal of narrative research is to study the lives of people. Narrative approaches focus on the story of a specific experience, and are used in several disciplines in the humanities and social sciences including anthropology,

literature, history, psychology, and sociology. The typical approach used by narrative researchers is to study one individual at a time. Narrative researchers usually use interviews and documents as the main data sources. They evaluate the data to convey stories and advance themes using sequences of events. The major objective of narrative research is to create a chronicle of the life of an individual, narrating events in a chronological order by following defined timelines (Maxwell, 2012).

Phenomenological research approach. Researchers use phenomenology to obtaining an understanding of the essence of a person's lived experience. The approach developed from the fields of philosophy, psychology, and education. Generally, phenomenological researchers investigate several individuals who have shared an experience. The data collection technique most frequently used by phenomenologists is interviews with research participants. They also may study documents, observations, and images to obtain information for analysis (Maxwell, 2012). The central focus of phenomenological research is to understand phenomena that underlie human experiences.

Grounded theory research approach. Researchers applying a grounded theory approach develop a theory by using data from the views of the research participants. Based on ideas from sociology, the grounded theory approach is used to examine a process, an action, or an interaction connecting many people. The goal is to establish a theory by synthesizing findings regarding their behaviors. The grounded theory approach uses interviews as its major data collection technique, typically from 20 to 60 participants during a study. Data analysis methods include open coding, axial coding, and selective coding (Maxwell, 2012). Gentles et al. (2014) used grounded theory to study the critical

approach to reflexivity and concluded that the use of reflexivity and its incorporation in grounded theory was at its early stages and this showed the continuous growth of grounded theory.

Ethnographic research approach. Ethnographers focus on describing and interpreting the behaviors of a group that shares a unique culture. Using techniques drawn from anthropology and sociology, ethnographers seek to gain a better understanding about the culture of a group of people. Ethnographers use observations and interviews as the main data collection techniques, and they may also gather data from other sources during the prolonged time that they spend in the field (Maxwell, 2012).

Case-study research approach. The case-study approach focuses on developing an in-depth explanation and analysis of a case or several cases. Using techniques drawn from psychology, law, political science, and medicine, case-study researchers explore an event, a program, an activity, or more than one individual. Interviews, observations, and reviews of documents and artifacts represent the major data collection techniques available for case studies (Maxwell, 2012).

Summary. Each of the five main qualitative research approaches is valuable for addressing distinct research problems. For instance, narrative research may be appropriate to address a specific research problem, but for another research problem, a case-study approach may be more appropriate. Maxwell (2012) provided a useful comparison of the different characteristics of the five major qualitative approaches based on emphasis, type of issue best suited for each design, discipline background, unit of investigation, data collection procedures, data analysis approaches, written report, and

overall organization of study. Maxwell concluded that narrative research is best suited for research problems that require stories of individual experiences, the phenomenological approach is most useful when the researcher wants to describe the essence of a lived phenomenon, the grounded research approach is valuable for grounding a theory in the views of participants, the ethnographic approach is best for telling and explaining the shared patterns of the culture of a group of people, and the case-study approach is best suited for building an in-depth understanding of a case or cases. Thus, these approaches are distinctive in their own right.

I determined that phenomenology was the most appropriate approach for my research. Husserl (2011) linked phenomenology to reflective experience and inner experience. Reflective experience allows phenomenological researchers to pause and reflect on their research journeys. This reflection often includes an assessment of whether the existing research methods and procedures are working, and provides insights for deciding whether changes should be made to current processes and procedures. Such reflective actions can help unravel problems and motivate discussion among researchers about options that can strengthen their research methods.

Husserl (2011) emphasized a need for a theory of knowledge that can provide critical enlightenment for explaining phenomena. The phenomenological research idea is to use a research method that produces knowledge and understanding so that research questions can be answered appropriately and evidence can be produced to support research findings. Choosing the wrong research method can be disastrous for a study because it will not provide the procedures to explore the problem thoroughly.

Husserl (2011) named transcendental phenomenology as a research approach introduced by Aristotle that has evolved across all the sciences. The transcendental phenomenological approach is recommended for solving novel problems and discovering truth through understanding the lived experiences of people. According to Husserl (2011), the methodological ground of the universal science makes room for the phenomenological method, which is essentially a conceptualized description of pure intuition of essence and intentional analysis. Of note, the authors used pure intuition of essence to show how researchers combine the power of reflection and experience in a cohesive way that can bring the best out of research approaches such as phenomenology.

Husserl (2011) highlighted the early challenges of phenomenology before it was an accepted scientific research approach. Phenomenology adds value to science fields such as psychology because the power of reflection that the phenomenological approach requires makes this research approach attractive to many hesitant academic thinkers. Transcendental phenomenology is a prominent scientific research method and it is a viable contender as a proven research approach capable of building knowledge and adding to an increased understanding of the world (Husserl, 2011).

In summary, I selected transcendental phenomenology as the appropriate qualitative research approach for this study over the other qualitative approaches because it was consistent with the purpose of the study, which was to emphasize the lived experiences of minority small business owners who operated in the cloud.

Sample and Population

In this section, I provide an overview of sampling design and describe the sampling procedures and strategies used for selecting the participants, sample characteristics, the sample size, and procedures used for gaining access to the participants

Overview of Sampling Design

Frankfort-Nachmias and Nachmias (2008) described a sample as a subset of a population (p. 163). Sampling allows researchers to select a subset of a population to study and form the basis for generalization to the larger population. The sample of participants is chosen based on participants' ability to contribute to the understanding of the phenomenon being investigated. Sampling is an important component of a research procedure—studying the entire population is typically impossible because of time and economic resource limitations.

Maxwell (2012) enumerated the kinds of sampling approaches as maximum variation, homogeneous, critical case, theory-based, confirming and disconfirming cases, snowball or chain, extreme or deviant case, typical case, intensity, politically important, random purposeful, stratified purposeful, criterion, opportunistic, combination or mixed, and convenience (p. 158). These sampling approaches provide researchers with many options when conducting research. Researchers choose which sampling approach best fits their needs by assessing how a specific sampling strategy will produce an appropriate sample for addressing the research questions. The research questions typically are used to direct the implementation of the study, including the sampling design. For example,

research questions designed to explore the formation of a theory to fill an existing theoretical gap will inspire the researcher to use a theory-based sampling strategy.

Patton (2002) wrote that the purpose of sampling for a qualitative researcher is to gain insight about a phenomenon. This study used a purposeful sampling strategy. Maxwell (2012) defined purposeful sampling as the selection of research participants who can contribute to the understanding of the phenomenon.

The target research population consisted of business leaders in the United States. In this study, I used purposeful sampling to select participants who were business leaders who have operated or currently operated business applications in the cloud. For this study, 15 users of cloud-based business applications were invited to participate. Eight of the participants were business owners, five were information technology (IT) professionals, and two were ordinary users of cloud applications.

Sample Size

Determining the suitable sample size for a study is essential because an adequate sample size can confirm that satisfactory evidence was established to support the findings of the inquiry adequately. Maxwell (2012) noted that qualitative inquiries normally involve small samples that are explored in depth. Unlike calculating sample sizes for quantitative studies, the suitable sample size for a qualitative study cannot be straightforwardly calculated. Determining the correct sample size depends on the type of data the researcher plans to collect and the type of understanding the researcher seeks from the study. For example, Patton (2002) reasoned that the main consideration for choosing a suitable sample size was to determine what the researcher wanted to report at

the end of the inquiry (p. 229). That is, the choice to emphasize depth over breadth drives how researchers choose the sample size (Patton, 2002). A researcher who desires to emphasize depth will select a smaller sample size, and a researcher who wishes to emphasize breadth will select a larger sample size.

Maxwell (2012) warned that incorrect sampling and insufficient sample size could produce a sample of nonrepresentative participants who produce data regarding nonrepresentative events and nonrepresentative processes (p. 295). Maxwell (2012) recommended that qualitative researchers avoid concentrating on the fact that they study only a few people; instead, researchers must be interested in collecting deep details about the participants. The emphasis of qualitative research is not to generalize the conclusions but to develop profound insight into the specific phenomenon being investigated. Maxwell (2012) proposed different sample sizes for the different qualitative approaches: Narrative researchers typically recruit one or two participants, and phenomenological researchers may recruit between one and 325 participants, although a sample of three to 10 participants is more common (Maxwell, 2012). Researchers using a grounded theory approach generally invite 20 to 30 participants to develop a well-saturated theory (Maxwell, 2012). Ethnographers typically concentrate on only one culture group, and case-study researchers typically sample one to five cases (Maxwell, 2012). The distinctive emphasis of each particular research approach determines these fluctuating sample sizes.

In this qualitative study, I collected data from a sample of 15 participants. The sample size of 15 was higher than the average phenomenology sample of 10. This sample

size was thoughtfully selected to facilitate in-depth interviews of the research participants. In addition, the sample size was judiciously chosen to develop satisfactory evidence on the phenomenon being studied. The designated sample size emphasized depth over breadth in terms of the nature of the phenomenon.

Frankfort-Nachmias and Nachmias (2008) identified two data collection approaches: *complete participant* and *participant as observer*. For the complete participant approach, the researchers participate directly in the group of interest, becoming participating members but without revealing their identities and research goals to the group. For the participant as an observer approach, the observers participate in the activities of the group in a way that reveals their identities and research goals. The distinction comes from the way the participants become involved in the research process.

Gaining Access to Participants

I gained access to participants by inviting them through e-mail. I used a mailing list of business owners. Everyone in the mailing list had a fair chance of participating in the research. I selected a random sample of participants by randomly selecting e-mail addresses of participants in the mailing list. I communicated with participants and informed them of their rights and responsibilities in the research process through e-mail.

According to Frankfort-Nachmias and Nachmias (2008), it is important for researchers to establish good relations with research participants. Good fieldwork depends on discovering the meaning of social relations, and this can be fundamentally achieved when researchers are able to build working relationships with research participants (Frankfort-Nachmias & Nachmias, 2008). Phenomenological research can be

successful when the researcher can establish good relations with the research participants in a way that encourages the research participants to reveal their true experiences during the data collection phase.

I collected valid data by developing rapport and building trust with the participants. I explained to participants that I was an Intuit QuickBooks Pro Advisor and a corporate controller with financial responsibilities involving deploying resources to the cloud. I was familiar with the online business environment. In this capacity, I was able to build trust among the research participants who operated business applications in the cloud by presenting myself as a learner interested in understanding the business owner's experiences of operating business applications in the cloud and gaining an appreciation of the opportunities and challenges of operating a business in the cloud. My intention was that the good working relationship I built with the participants would create a collaborative environment that would allow the participants to provide rich and valuable data to answer the research questions.

Data Collection

The main data sources for the study were interviews and observational field notes. These data sources are discussed in detail in this section.

Interviews

The primary means to collect data from the participants of this study were open-ended questions asked during in-depth, in-person, semistructured interviews. The primary data were collected from interviewees in an interactive environment that provided opportunities for dialogue to explore the experiences of research participants. Various

data collection procedures exist that phenomenological researchers can use to collect data; however, the in-depth interview is the main method for collecting rich data for phenomenological studies.

Mori et al. (2012) used in-depth interviews to collect data in a study about the characteristics of caregiver perceptions of end-life caregiving experiences. The authors interviewed 34 caregivers from two palliative care units in Japan. They gathered evidence to support their conclusion that caregivers' subjective experiences could be classified, and their relationship to depression should be better understood (Mori et al., 2012, p. 666). Using interviews assisted these qualitative researchers to develop objective evidence to support their finding that caregivers should be considered in clinical views of cancer survivorship (Mori et al., 2012).

In another study, Dickson et al. (2008) used interviews to gather evidence to understand the difficulties of adjusting to post-discharge life following a spinal cord injury. The authors conducted individual semistructured interviews with 17 research participants who had experiences of traumatic spinal cord injury, focusing on the lived experiences of participants. Interview questions were asked to obtain details about participants' experiences after acquiring spinal cord injuries, ways that their lives had changed after their injuries, and areas in their lives that had been most affected by living with spinal cord injuries (Dickson et al., 2008). In-depth interview questions allow researchers to interact closely with the research participants to obtain valuable data that are rich with the original accounts of the experiences of the participants.

In-depth semistructured interviews using open-ended questions were the principal method used to collect data from the participants of this study (see Appendix A). In this study, I conducted face-to-face interviews so I could clearly see the body language of the interviewees. Body language can offer rich data to support the research. Body language can show the research participant's interest or lack thereof and indicate levels of enthusiasm for research questions as interviewees answer them. These responses can be valuable for qualitative research, particularly in phenomenology, in which the researcher strives to explore the lived experiences of the research participants. Body language can sometimes be better than words at communicating people's feelings.

If face-to-face interviews were logistically difficult or impossible, I used video conferencing to interview research participants. Face-to-face interviews or videoconferences showed the interviewee's body language. I did not use e-mails or telephone interviews because these options did not create a live, visual, interactive environment. With e-mail interviews, I could not have presented real-time follow-up questions to clarify responses when necessary, and with telephone interviews, I could not learn from the body language of the interviewees.

Interviews took place in a collaborative atmosphere. Janesick (2011) recommended focusing on details and paying attention to understand the societal location rather than guessing and controlling the setting. Maxwell (2012) claimed that instrumentation might mean little unless certain strategies are used to support open-ended interviews and field observations. Maxwell suggested using procedural actions such as taking notes, recording the interviews with audio or video, and transcribing the interviews

(p. 37). Maxwell noted that the act of conducting interviews could be demanding, particularly for new researchers, and recommended that recording and transcribing equipment should be prepared in advance of the interview. Maxwell also recommended using high quality tapes for recording information during interviews but in these modern days of smart phone technology, platforms such as Facetime were considered to record interviews where feasible. The primary data consisted of interview transcripts. I used a member-checking technique to establish content validity and improve the accuracy, credibility, validity, and transferability of the study.

Observational Field Notes

In addition to the interview data, I kept a journal to record daily synopses of field observations throughout the period of the research. These records became an integral part of the analysis and findings. Journaling enables researchers to put their thoughts in writing so they can reflect on the thoughts later; the written thoughts become data records stored for later analysis (Janesick, 2011).

Using journals can improve researchers' ideas and views and provide insight into the research in progress. In addition, research journals containing field notes recorded during data collection and analysis constitute a data source a researcher can use for triangulation of data sources (Janesick, 2011, p. 156).

Method of Data Analysis

In this section, I discuss the methods I used to process, analyze, and report the data. These methods include data management, analysis, and representation.

Data Management, Analysis, and Representation

Data management. Data procedures for a qualitative study include data management, reading and memoing, description, classification and interpretation, and representation (Maxwell, 2012). The primary data consisted of interview transcripts and field note journals. Janesick (2011) suggested becoming familiar with interview transcripts by working with recorded interview data. I used Moustakas's (1994) approach for conducting phenomenological analysis: (a) I described my personal experience (bracketing) so the focus can be on the study participants; (b) I developed a list of noteworthy statements from the data; (c) I grouped the information into themes; (d) I wrote descriptions of participants' experiences with the phenomenon, including *textual* descriptions and *structural* descriptions (*how* the experiences happened); and (e) I wrote a description incorporating both the *textual* and *structural* descriptions.

Data analysis. I used NVivo, a computer-assisted qualitative data analysis software, to facilitate coding and analyzing the data from the interviews. Iovu and Runcan (2015) enumerated the benefits of using computer software in research, noting the software's ability to manage enormous volumes of data at great speed and to process the data to obtain rigorous analysis. Software packages can help researchers to execute analyses that produce vital data to inform their studies. NVivo can be used in the field, at work, or at home, because the data move with the researcher through the NVivo software package. NVivo helped me code and analyze the data collected from the interviews.

When researchers work with data, recurring themes and patterns are often noted (Miles et al., 2014, p. 277). Patterns do not just happen—they are constructed from the

observations of recurring phenomena (Miles et al., 2014, p. 278). In this study, I intended to construct themes and patterns to answer the research questions.

Miles et al. (2014) recommended storing data from the field in multiple forms, including field notes, recordings, site documents, write-ups, transcriptions, initial version and cleaned or commented versions of write-ups as offered methods that researchers can utilize to store data from the research field (p. 51). Having several sources for storing data can reduce the risk of data lose because the researcher can access an available source when one source is missing or lost.

I stored data using diaries to record field notes and recording devices such as a smartphone to record interviews, which were saved to my laptop and flash drive. Miles et al. (2014) noted issues with data management could include data quality and accessibility, proper documentation of the research analysis, good retention of data, and related analysis at the end of the research.

A good practical strategy for organizing and documenting research data is to create different folders, electronically on a computer or by using a physical filing system, in which the researcher can clearly identify and store the various research materials. This process makes it easy to access materials.

Data representation. I packaged and presented the findings in the form of a matrix to begin the data analysis. In this study, I used Anfara et al.'s (2002) iterative code mapping procedure to present how I built the original codes into categories and applied them to the research questions to form emerging themes. In addition, I used Constas's

(1992) documentation table for the development of categories to show how categories were developed to make an open analysis during the data representation process.

Issues of Quality and Ethics

In this study, I ensured quality by confirming that all sources used for the research were thoroughly reviewed and impartially assessed. Evaluating the work of other researchers objectively and working with differing points of view is an essential expertise that can assist a researcher to create an unbiased scholarly work. For example, the ability to see deficiencies in the work of others can lead to the identification of literature gaps that can form the basis of a new study. Maxwell (2012) suggested some research guidelines for recognizing deficiencies in scholarly work: (a) referring to several deficiencies to make the case for a study more robust, (b) detecting precisely the shortcomings of other studies, (c) writing about areas that are ignored by previous studies, and (d) debating how a future study could remedy the current gaps and make a contribution to scholarly literature (p. 107).

Working with various and even contradictory views from researchers on a topic is a good process to recognize areas that have been unnoticed in order to establish a literature gap to build a new study. According to Al-Atiyyat and Badr Naga (2014), the expertise required by researchers to assess research methods methodically should include working knowledge about hypothesis development, sampling techniques, study design, testing procedures, and instrumentation, data collection and data management, statistics, and interpretation of findings. I used these skills in my own study.

Frankfort-Nachmias and Nachmias (2008) noted that in order to establish internal validity, the researcher must determine whether changes in the independent variable did in fact cause the change in the dependent variable (p. 95). They maintained that the effort to attain validity is the guiding force behind the design and implementation of research projects. Internal validity is therefore important for research design.

External validity is also important for research design when the effects of studied variables are extended to larger populations and natural settings. This process helps to assess the representativeness of the sample and the reactive arrangements in the research procedure (Frankfort-Nachmias & Nachmias, 2008, p. 101). The choice of design and assessment of threat to validity are critical elements a researcher must consider to complete a successful study. In this study, I implemented measures to ensure both internal and external validity so the research product was good quality.

Qualitative researchers strive to achieve confirmability, transferability, dependability, and credibility. According to Miles et al. (2014), confirmability is relative neutrality and reasonable freedom from unacknowledged researcher biases. Enhancing confirmability helps make a study objective. Transferability assesses whether a study has a larger application and determines whether the study fits or can be generalized in other contexts. Dependability assures that the process of the study is reasonably stable and consistent across researchers and methods, thus helping to make the research reliable. Credibility assures that the findings of the study make sense and are believable when assessed for its truth value; credibility establishes the authenticity of the study. I used

these standards to assure that the findings of the study were objective, reliable, valid, and dependable in order to ensure internal validity for the study.

In this study, I used a semistructured interview approach because being flexible with my research participants was important. I established an interactive relationship with research participants in an informal environment to encourage information sharing and illuminate the lived experiences of the interviewees with respect to cloud computing. Even as I sought to take advantage of the flexibility of this less-structured approach, I remained vigilant about the challenges that a loosely designed study posed for me, as a new researcher (Miles et al., 2014). I hoped this structure would enable the study to achieve the defined research goals.

In addition, I ensured quality and ethics by accurately evaluating all data sources using the highest possible standards.

Researcher's Role

I conducted the entire research through all stages of data collection, data analysis, and report writing. I traveled to the locations of the research participants when necessary to conduct the interviews. I conducted some interviews using video conferencing technology to reduce the need to travel to participants' locations.

Janesick (2011) recommended that qualitative interviewers begin by writing some basic, descriptive, and grand-tour questions. Interviewers must be able to create a comfortable and open atmosphere and pace for the interviews and clearly explain why the interview is being conducted. Interviewers must show genuine interest in the interviewees, take notes, and smile where possible. I am skilled in the art of interviewing;

I expected to be able to obtain valuable information during the interviewing process. I collected data from October 2016 through November 2016 after receiving all necessary approvals. Data analysis commenced immediately after data collection and continued until the research report was ready.

Researcher's Bias

As the researcher, I was the main data collection instrument. That role, in addition to my background as an Intuit QuickBooks Pro Advisor and a corporate controller, could have led me to influence the data inadvertently with biases based on my personal views and interests. It is important for researchers to decrease bias in a study. For qualitative research, a quality study uses data that are free from the researcher's biases and require the researcher to portray the research situation correctly. Any attempt by the researcher to influence research outcomes to demonstrate the views of the researcher is unacceptable. I implemented suitable measures during the research process to ensure quality. I made every effort to set aside my personal views and interests and objectively evaluated and analyzed the data for this study.

In addition to confirming quality in qualitative research, it is also important to decrease researcher bias. Bias can be minimized when a researcher factually assesses the views that are used to support the research work and objectively analyzes the research data. A researcher can reconcile diverse points of view among authors by impartially reviewing current literature. I have learned when working with several points of view to search multiple sources in order to cultivate a higher level of understanding and reach an unbiased analysis of the diverse viewpoints. Maxwell (2012) recommended a

corroboration strategy for confirming the quality in research to avoid bias. I used these measures to minimize or eliminate bias and reduce subjectivity.

Participant Protections

The protection of participants is important for the success of this study. Miles et al. (2014) noted ethical issues related to informed consent, benefits and costs of the study, harms and risks of the study, privacy and confidentiality, research honesty and excellence, usage and misuse of study outcomes, and conflicts and dilemmas. These features caused some thought provoking deliberations regarding how I could design the study in a way that effectively addressed these ethical issues while still allowing me to obtain rich quality data. The solution that came to mind as an effective measure to protect my research participants was to be honest with these participants and clearly communicate the expectations and challenges of the research to these participants. The Walden University Institutional Review Board (IRB) approval number for this study as stated on the consent forms provided to the research participants was 10-04-16-0439712.

Miles et al. (2014) recommended using an agreement with the research participants in order to develop a framework that can ethically protect the participants. The agreement framework included informing participants about how much time and effort would be involved, what kind of data collection was involved (observation or interview), whether participation was voluntary, who designed the study, whether materials from the participants would be treated confidentially, whether participant anonymity would be maintained, whether participants would be allowed to evaluate and assess the final product, and what benefits would accrue to both participants and

researchers (Miles et al., 2014, p. 57). These questions were important to the study, and I integrated them in interactions with research participants in order to clearly communicate the expectations of the research to them. I treated information received from the participants with care and confidentiality.

I respected the privacy of the research participants. Miles et al. (2014) recommended that qualitative researchers must contemplate the consequences of their work on the people whose lives are being studied and proposed that researchers must use the classic principle of human conduct of *first doing no harm* to guide their work (p. 56). I strove to do no harm to the research participants by adopting measures that would ethically protect the participants including treating them with respect and maintaining confidentiality of participants' data to ethically protect the research participants.

Summary

In Chapter 3, I presented the method of inquiry and design for the study. In this study, I sought to understand the financial value that cloud-based business applications create for business owners. I explored the experiences of small business owners as they used cloud-based business applications. My goal was to understand how their experiences influenced the creation of financial value for their businesses.

The phenomenological approach was the most appropriate method because phenomenology aligned with the purpose of the study, which emphasized business owners' lived experiences. In-depth interviews and field notes comprised the data sources. The interviews consisted of open-ended, semistructured questions. The sample

size was 15 participants, purposefully selected through the maximum variation, criterion, random purposeful, and theory-based sampling strategies (Maxwell, 2012).

Data were coded and analyzed to find patterns. Detailed description, categorical aggregation, direct interpretation, and development of naturalistic generalizations were prepared (Apori-Nkansah, 2008). The findings were validated using multiple sources of data, member checking, and peer review. The research participants were protected by my assurances of anonymity and confidentiality concerning information they provided for the study. This methodology yielded information that may provide an understanding of the lived experiences of business leaders as they operated business applications in the cloud to create financial value. In Chapter 4, I present the results of the data analysis and findings that yield answers to the research questions.

Chapter 4: Data Analysis and Findings

Introduction

In this chapter, I present the findings of this study. The purpose of this study was to obtain a deeper understanding of the financial value of cloud-based business applications from users' perspectives. Hence, I used a phenomenological research design. My intent was to understand the experiences of small business owners as they operated business applications in the cloud, and my goal was to determine the financial value that cloud operations created for their businesses. I designed the following questions to guide the study:

1. What are the lived experiences of business owners who operate business applications in the cloud in terms of creating financial value despite security concerns?
2. What do business owners perceive as opportunities for businesses to move their business applications to the cloud?
3. What do business owners perceive as challenges in moving their business applications to the cloud?
4. How does operating a business application in the cloud create financial value?

The chapter is organized to present how I generated, gathered, and recorded data, and to show the process by which the meanings emerged in the study. I conclude the chapter by presenting the findings.

Context of the Study

I used a phenomenological approach to provide in-depth experiential perspectives on the subject. The findings in this chapter consist of analyses of two sets of data: interviews, and field notes. In October 2016, I recruited participants for the study. Participants were recruited online, mostly through a cloud-based application user directory. I did not limit the selection of participants to a geographical location because representativeness was not the most important selection criteria. The most important selection criteria for the study was experience of the phenomenon being studied: I sought to collect rich data on the experience of participants with respect to their use of cloud-based business applications. In the recruitment tool, I therefore emphasized that having experience with a cloud-based business application was a basic requirement to participate in the study.

I conducted interviews with 15 users of cloud-based business applications who were either business owners or IT professionals. I did not encounter data saturation—something new was learned from each participant about the phenomenon being studied—and therefore I interviewed all 15 participants. Participants included 10 business owners, three IT professionals, and two users of cloud-based business applications who were neither business owners nor IT professionals. The participants consisted of nine females and six males.

I coded the names of the participants in letters and numbers to prevent personal identification, in compliance with the privacy provisions of the consent form provided to the participants. The coding structure I used for the research participants consisted of the

initials of the first and last names of the participants with an additional designation of 1 and 2 in the event that participants shared the same initials. Thus, the research participants were coded as CA, CO, CT, DA, FK, FL, FO, JA, JK, LS, MC1, MC2, RC, TS, VS. Table 1 shows the coding and demographics of research participants. Table 2 shows the ethnicities of the research participants.

The participants were of diverse ethnicities and races, including African Americans, Asian, and Caucasians. Thirteen of the participants interviewed belonged to a minority racial group; 12 were African Americans (also referred to as Black Americans) and one was Asian American. The remaining two participants were Caucasians (also referred to as White Americans). Ten of the 12 African American participants were small business owners, and the other two were treasurers of their organizations with financial management responsibilities.

Table 1

Demographics of Research Participants

Participant	Gender	Group	Cloud Use	Years of Use
CA	Male	IT	Yes	7
CO	Female	user	Yes	5
CT	Male	Owner	Yes	2
DA	Male	IT	Yes	3
FK	Male	IT	Yes	8
FL	Female	Owner	Yes	2
FO	Female	Owner	Yes	4
JA	Male	Owner	Yes	10
JK	Female	Owner	Yes	13
LS	Female	Owner	Yes	6
MC1	Male	Owner	Yes	3
MC2	Female	Owner	Yes	4
RC	Female	User	Yes	2
TS	Female	Owner	Yes	5
VS	Female	Owner	Yes	7

Table 2

Ethnicities of Research Participants

Participant	Gender	Category	Experience Score	Ethnicity	Group
CA	Male	IT	9	African-American	Minority
CO	Female	user	7	African-American	Minority
CT	Male	Owner	8	African-American	Minority
DA	Male	IT	None	African-American	Minority
FK	Male	IT	8	Asian	Minority
FL	Female	Owner	None	African-American	Minority
FO	Female	Owner	None	African-American	Minority
JA	Male	Owner	8	African-American	Minority
JK	Female	Owner	None	Caucasian	Majority
LS	Female	Owner	9	African-American	Minority
MC1	Male	Owner	9	African-American	Minority
MC2	Female	Owner	8	African-American	Minority
RC	Female	User	None	African-American	Minority
TS	Female	Owner	10	African-American	Minority
VS	Female	Owner	None	Caucasian	Majority

In this study, I used random purposeful sampling (see Maxwell, 2012) to recruit participants because experience with the phenomenon being studied was required so that participants could contribute meaningful information. I contacted potential participants through online cloud-based application user directories such as Intuit's Find-a-ProAdvisor directory. Upon accessing the online directory, I performed a random search for potential participants. The initial search returned 279 potential participants. I took the e-mail addresses of the first 15 participants who appeared in the search results.

On October 5, 2016, I emailed an "invitation to participate in research" communication to the 15 potential participants (see Appendix B). I repeated this process to the next 15 potential participants until I recruited enough participants to meet the sample size requirement of the study. A few participants were recruited using the snowballing strategy, in which participants recommended other participants who had experienced the phenomenon (Polkinghorne, 2005). I turned away three participants who were interested in the research because I had reached the 15 participants needed for the study.

After the selection process, I contacted the participants to introduce the study and obtain the necessary consent for the interviews. The participants who agreed to participate in the study received the consent form for the study and responded with "I consent" to the email that provided the consent form. I built trust with the participants by explaining the study to them and answering their questions regarding their participation, especially about the interview process. Many of these questions were about how long the interview process was expected to last, and I explained that they would be approximately

30 minutes long. Indeed, the interview sessions averaged 30 minutes, and the longest interview session was 39 minutes. This interview session lasted longer than the other interviews because the interviewee spoke very slowly. In general, participants considered the study necessary and were cooperative and willing to share their experiences to inform the research.

During the interviews, I had the opportunity to observe some of the participants, and I recorded these observations in a journal, which I compiled as field notes. Participant VS, for example, was overtly enthusiastic about the interview; her facial expressions showed visible excitement about the opportunity to share her experience. She sometimes introduced unrelated details about her experience, including a story about a time when she used a cloud application while traveling on the New Jersey Turnpike. I had to direct the participant back to the research questions of the study to keep the interview on track.

Interviews were semistructured with open-ended questions, which gave me the chance to follow up with clarification questions when necessary. I prepared the interview questions in advance (see Appendix A), and they were used to guide the interviews. However, I adapted the interview questions depending on the responses of the participants. All the interview sessions were recorded using a software program called Amolto Call Recorder. I also used iPhone Facetime and Google Hangout in some cases to conduct the interviews to achieve a video conferencing interview environment, which allowed me to see the facial expressions of the participants as they shared their

experiences. This information was valuable for observing the emotions and reactions of the participants as they responded to the interview questions.

The audio files of the interviews were transcribed using both Scribie and TranscribeMe transcription services. I then reviewed the transcribed files, spending several hours replaying each of the audio files and comparing the content with the transcribed files to confirm the accuracy and completeness of the interview transcripts. I maintained a reflective journal throughout the study to keep track of meanings as they emerged. I also wrote down themes as they emerged during the interview process. In addition, I wrote field notes based on observations throughout the study.

I used NVivo qualitative data analysis software to facilitate both coding and analysis. I uploaded the interview transcripts into NVivo, which created a source transcript for each participant. I then conducted a word frequency query (see Appendix C for the first set of the most frequent words), which generated interesting themes involving cloud application, security, experience, and financial value, among others (see Figure 2 for the word cloud query data).

The words that emerged most frequently from the initial queries on the data were used to run additional "text searches" on the data in NVivo until various themes relevant to the study began to emerge. Themes that emerged during the initial data analysis included *positive experience, opportunities*, *challenges*, *security concern*, *subscription model*, *financial value*, *timesavings*, *flexibility*, *ease of use*, *efficiency*, *cost savings*, *no security concern*, *convenience*, *move to cloud*, *service continuity*, *provider selection*, *file sharing*, and *easy collaboration*. These themes emerged as I analyzed the data from the

experiences of the participants. The themes affirmed the idea that the phenomenological interview typically consists of questions intended to collect *what* participants experienced and *how* they experienced it (Moustakas, 1994).

Figure 2. Word cloud query result.

I used Moustakas's (1994) approach for conducting phenomenological analysis. First, I described my personal experience (bracketing) so the focus was on the study

participants. Second, I developed a list of noteworthy statements from the data. Third, I grouped the information into themes. Fourth, I wrote descriptions of participants' experiences with the phenomenon, including textual and structural descriptions (*how* the experiences happened). Fifth, I wrote a description incorporating both the textual and structural descriptions.

The emerging themes from the data analysis were further analyzed to establish patterns and meanings that became the foundation for the findings of the study. The findings were based on the analysis derived from qualitative interpretation of the research data. I validated the findings of the research through multiple data sources and member checking. I performed member checking by summarizing and confirming the content of the interview with each participant at the end of the interview. I provided assurance to participants regarding the anonymity and confidentiality of the information they shared and let them know I planned to respect their privacy when reporting the findings.

Coding

The two major coding stages are first-cycle and second-cycle coding (Miles et al., 2014, p. 73). First-cycle coding involves initially assigning codes to data chunks. I analyzed the interview transcripts and field notes through detailed description, categorical aggregation, direct interpretation, and establishment of patterns. I used the *in vivo* coding approach to perform first-cycle coding (Miles et al., 2014). I used words or short phrases from the participants' own words in the data record as codes. Examples of codes generated using this method included *convenience*, *cost savings*, *timesavings*, *flexibility*, and *efficiency*, among others. Appendix D provides the codes generated from the data.

These regularly repeated words were used to determine emerging patterns for further analysis. Table 3 shows how data were applied to the research questions.

Table 3

Application to Data Set

Research Question	Themes
What are the lived experiences of business owners who operate business applications in the cloud in terms of creating financial value despite security concerns?	1a, 1b, 1c, 1d, 1e, 1j, 1n, 1p
What do business owners perceive as opportunities for businesses to move their business applications to the cloud?	2b, 2c, 2d, 2e, 2g, 2h, 2k, 2m
What do business owners perceive as challenges in moving their business applications to the cloud?	3a, 3b, 3c, 3d, 3e, 3f, 3l, 3r
How does operating a business application in the cloud create financial value?	4b, 4c, 4d, 4h, 4i, 4j, 4k, 4t

Note: The numerical portion of the theme code refers to the research question number that the theme related to. The alphabetical portion refers to the theme label sequence as shown in Appendix E: Code Mapping Showing Code Frequency.

Second-cycle coding involved working with first-cycle codes to group summary segments of data into smaller number of categories, themes, and constructs. I used pattern coding to perform second-cycle coding. According to Miles et al. (2014), pattern codes are used to condense large amounts of data into a smaller number of analytic units, thus laying the foundation to conduct analysis during data collection. Pattern coding produces a cognitive map of thematic interactions and shows the framework for cross analysis by surfacing common themes (p. 86).

Figures 3, 4, 5, 6, 7 and 8 show theme comparisons. These figures show the coding relationships between major themes such as cost savings versus efficiency, easy collaboration versus timesavings, easy access versus easy to use, financial value versus subscription model, provider selection versus education, and security concern versus no security concern. The figures show how the participants selected these major themes and how their selections compare with the responses of other participants.

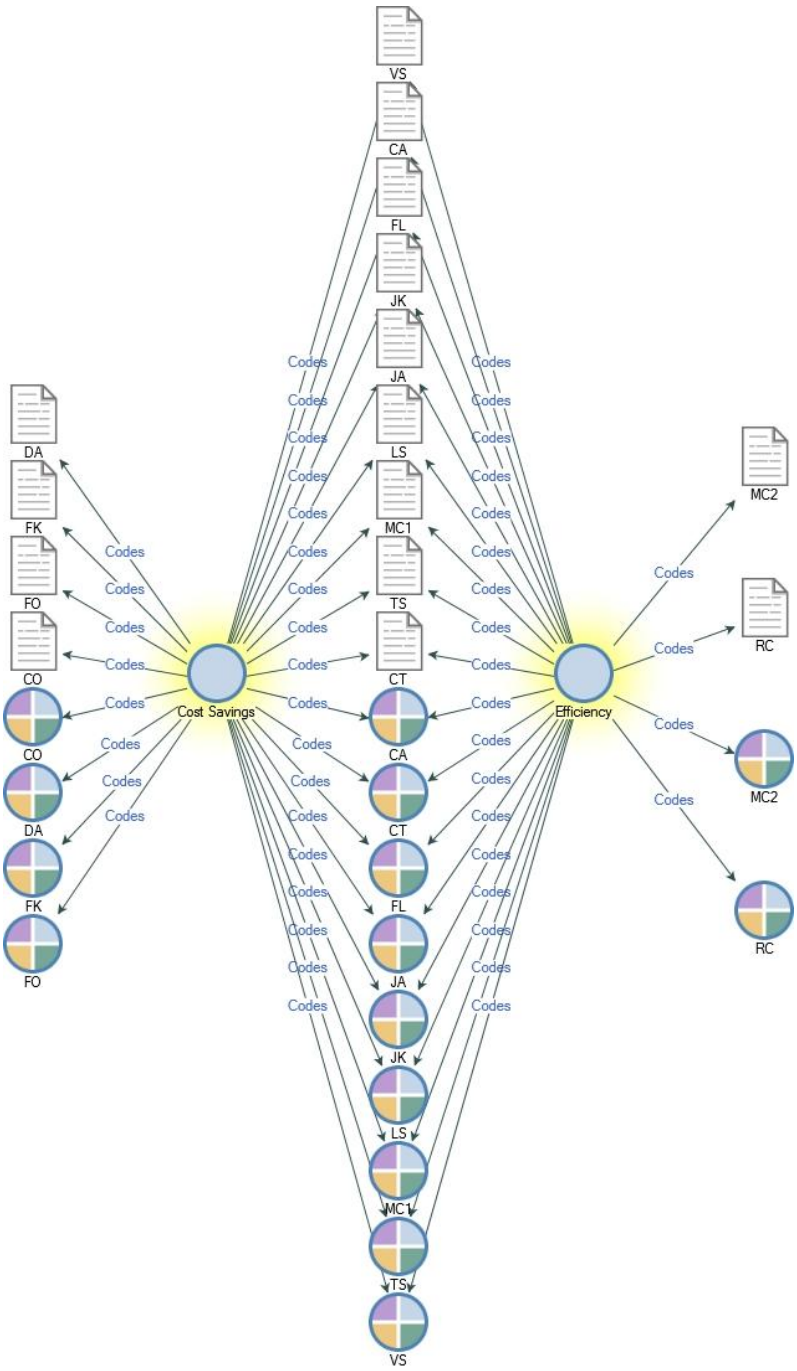

Figure 3. Cost savings versus efficiency.

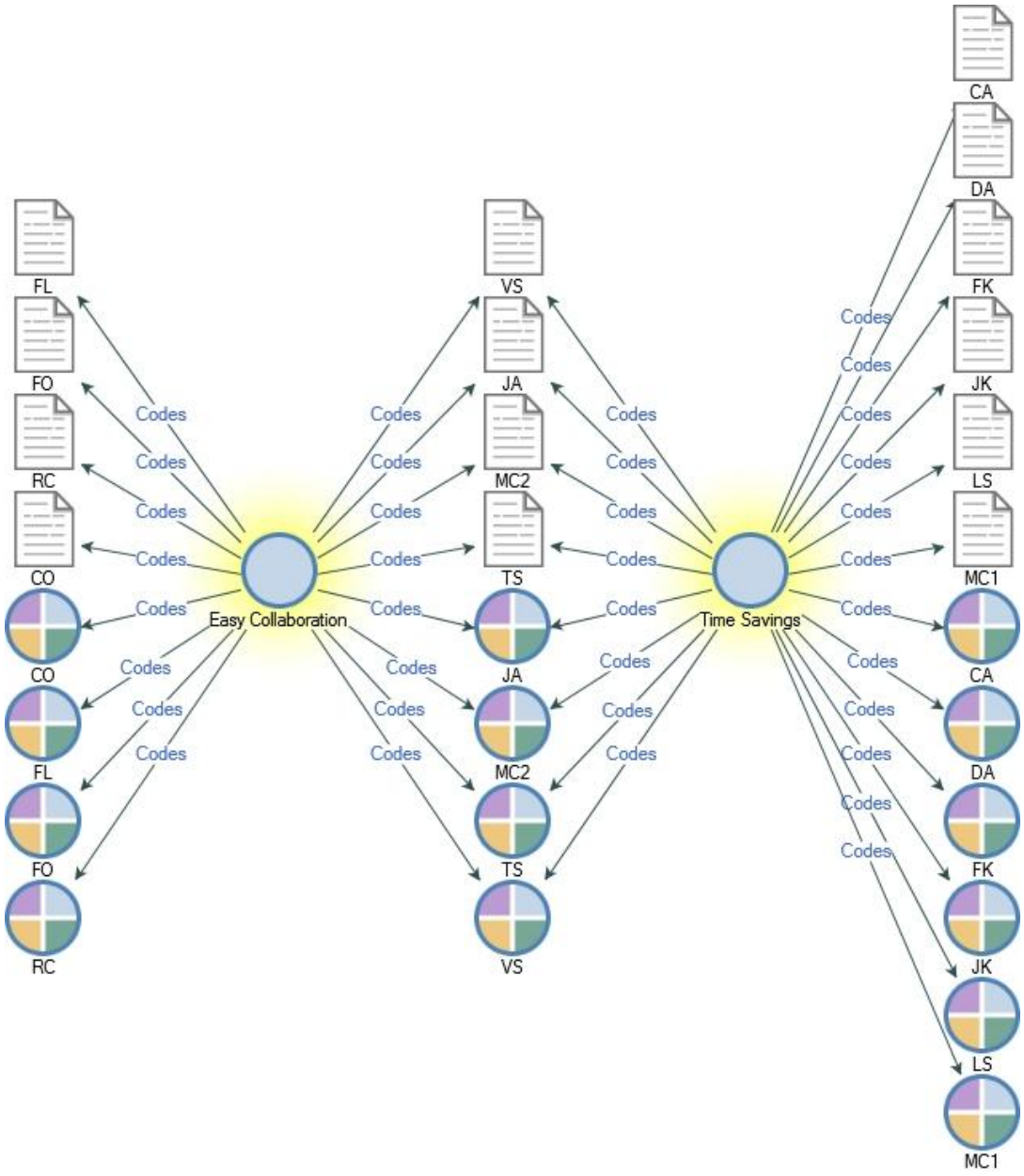

Figure 4. Easy collaboration versus timesavings.

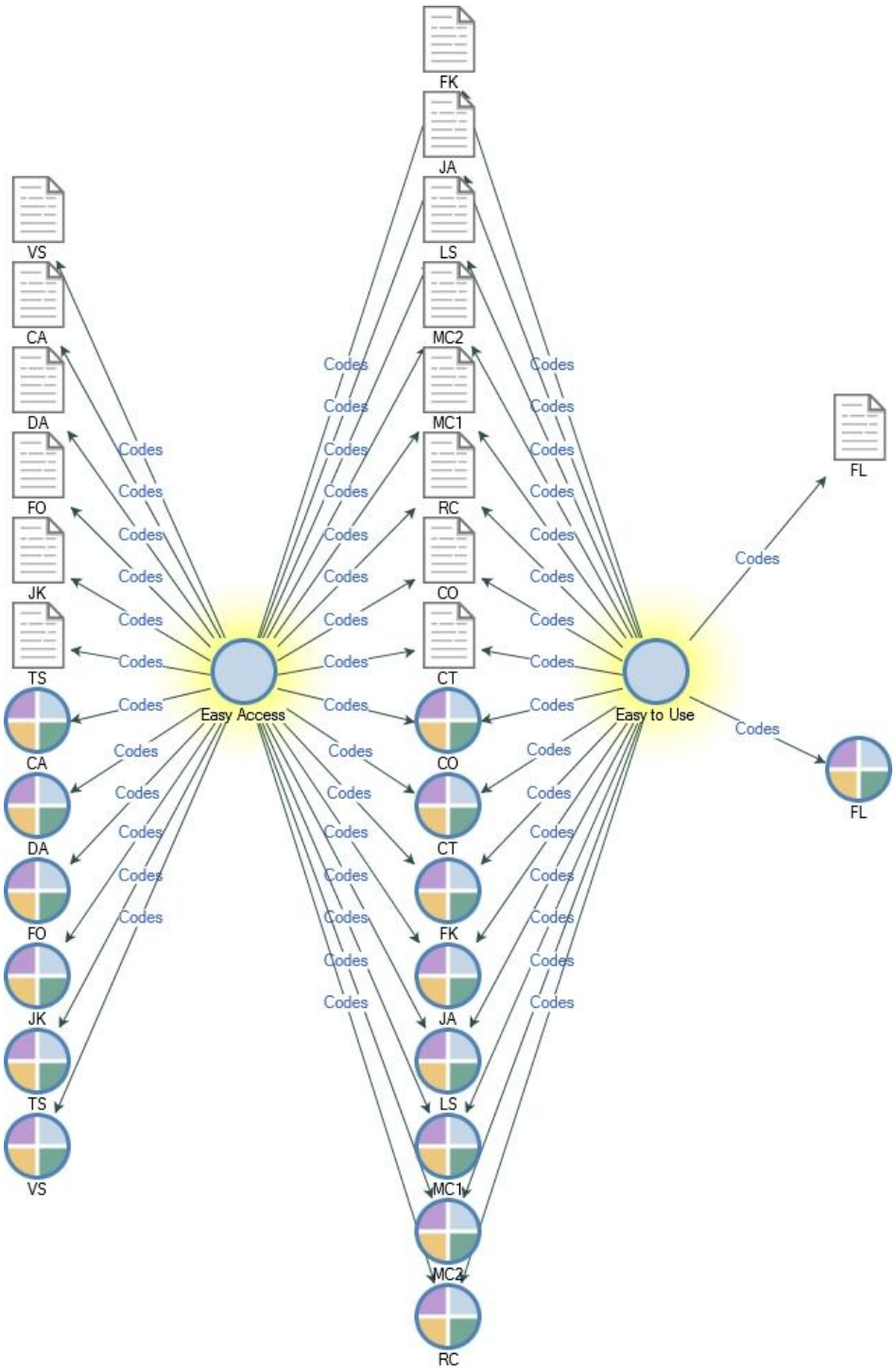

Figure 5. Easy access versus easy to use.

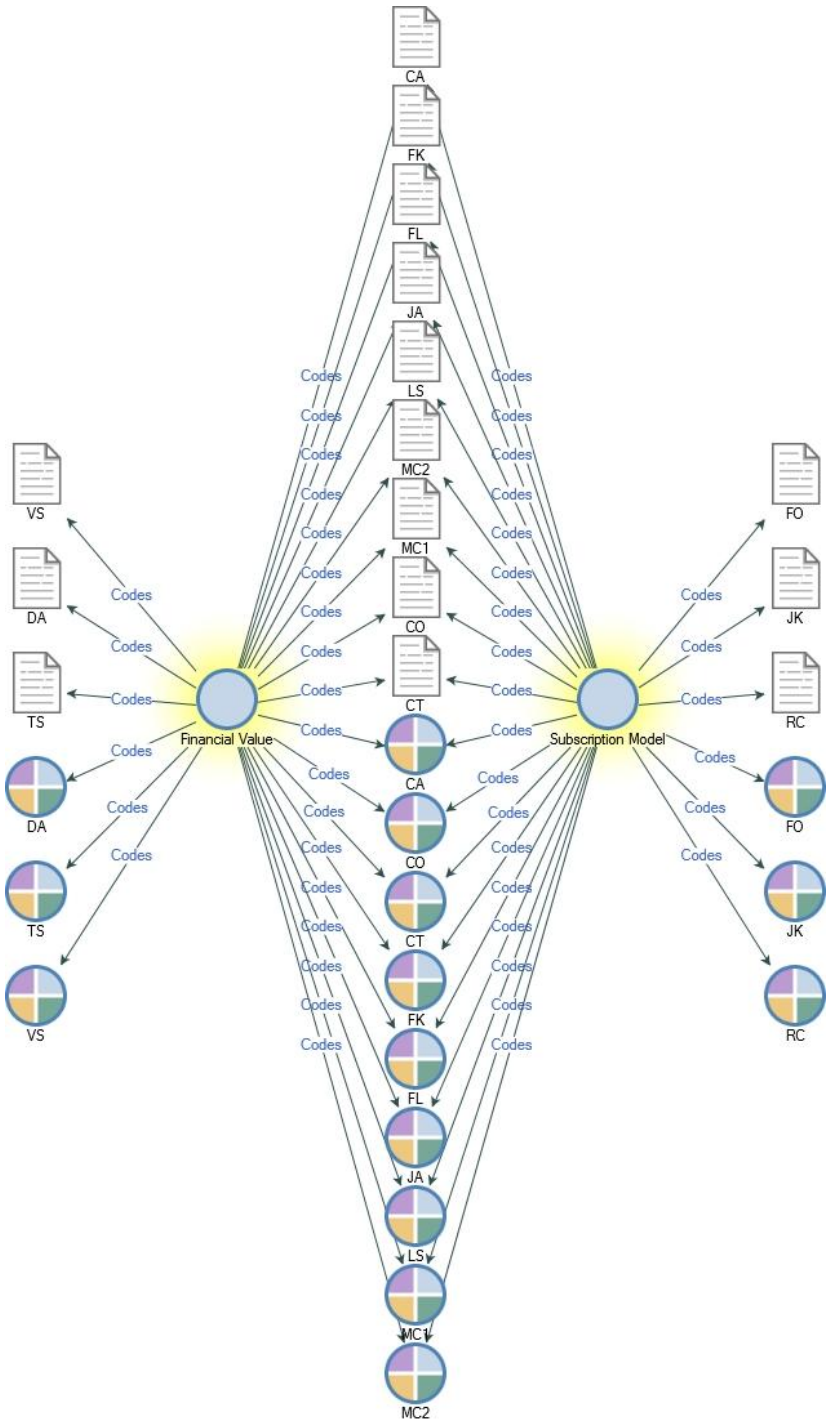

Figure 6. Financial value versus subscription model.

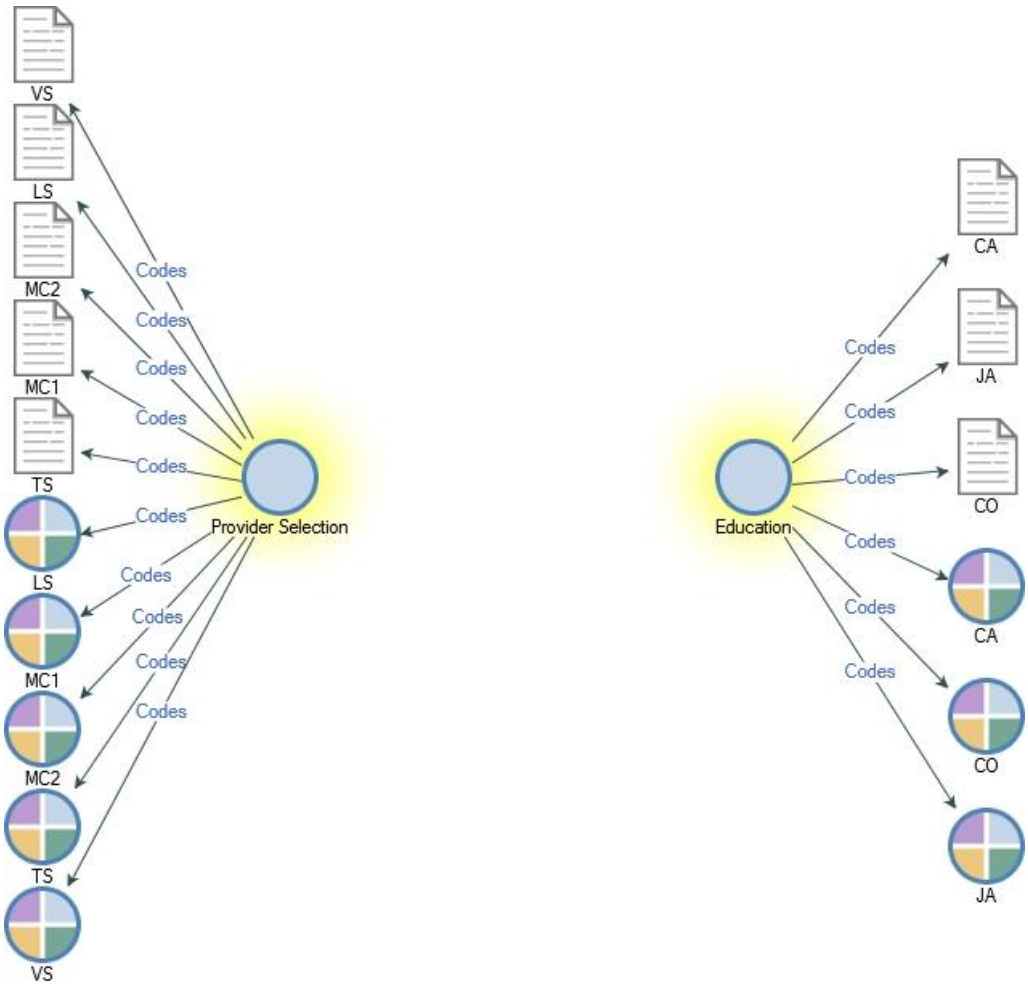

Figure 7. Provider selection versus education.

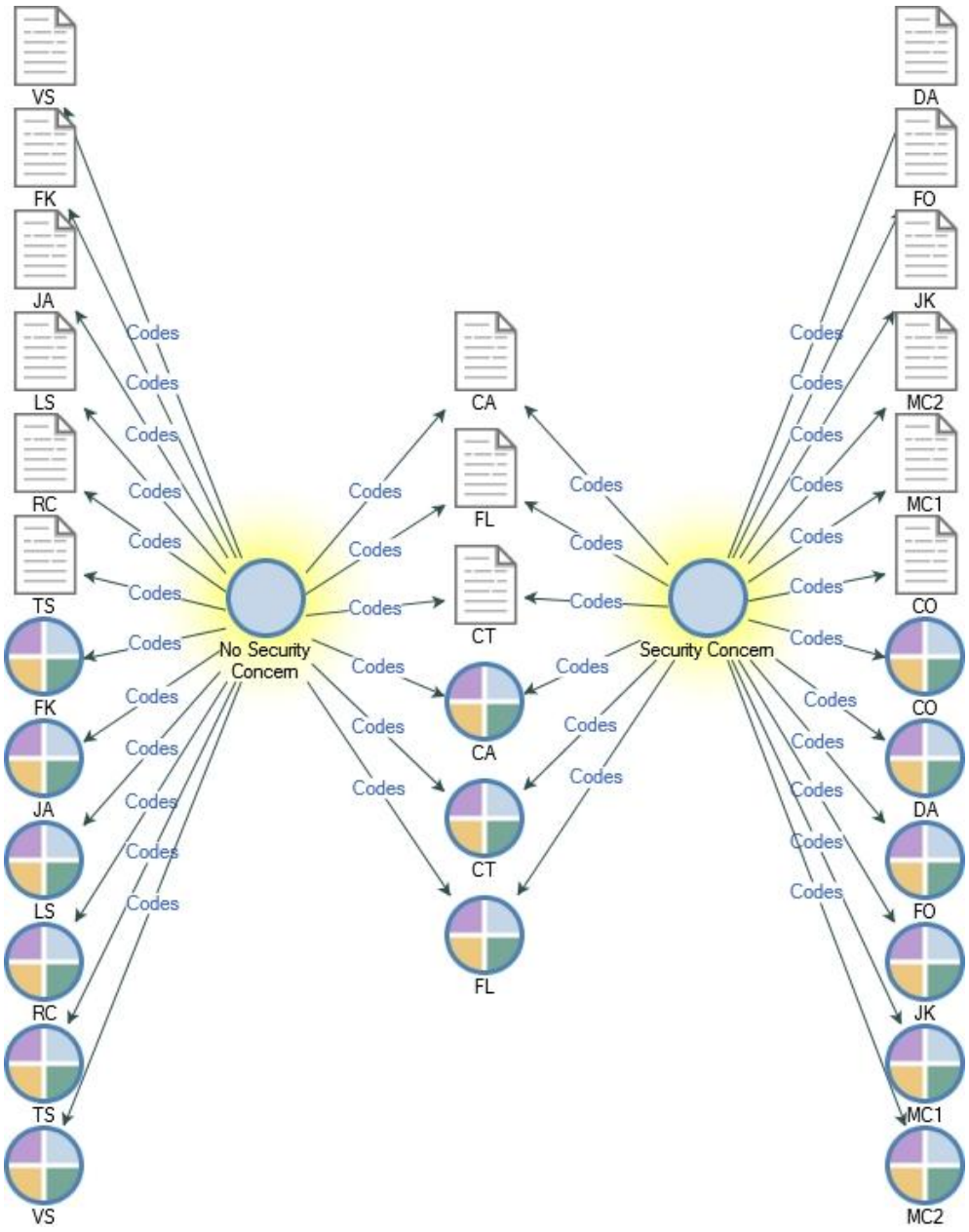

Figure 8. Security concern versus no security concern.

Data Analysis

Research Question 1

Research Question 1 was "What are the lived experiences of business owners who operate business applications in the cloud in terms of creating financial value despite security concerns?" With this question, I sought to explore the lived experiences of business owners who operated business application in the cloud. I also sought to determine whether the benefits of operating a business application in the cloud (including the potential for financial value creation) outweighed concerns about the cloud, especially concerns involving security risks. Analyses of transcripts from interviews and field observations revealed that participants largely had positive experiences in the cloud and believed that the benefits of operating in the cloud outweighed potential risks of operating in the cloud. Appendices D and E show the responses of participants regarding their experiences in the cloud.

Drivers of positive experience in the cloud. The analysis showed that certain benefits attracted participants to cloud applications. The benefits that emerged from the data analysis included convenience, cost savings, easy access, easy collaboration, ease of use, efficiency, flexibility, and timesavings. Nine of the 15 participants attributed their use of cloud applications to their positive experiences in the cloud.

Easy access. Easy access was the first most-often selected benefit of using a cloud application. Participants CA, CO, CT, DA, FK, FO, JA, JK, LS, MC1, TS, and VS said easy access was the best motivation for using cloud application. CT said the first reason he chose to use a cloud application was because it was easily accessible. He could

remotely log into the application as long as he had Internet access; thus, he was able to work anywhere without being limited to a physical office. CT said,

> Well, in fact, the first reason why I opted for a cloud application is because of the easy accessibility. Wherever you are, you are able to access it. Sometimes I may have some information at home which the traditional desktop may limit access but with the cloud based application I can easily access the information if its on the cloud.

FO, a minority small business owner, shared that accessibility to multiple people at the same time was the benefit that attracted her to work in the cloud. She could work with clients from multiple locations who could all log into the system at the same time to work without having to travel to physical locations. JA, a CPA and small business owner who had used a business cloud application for about 10 years, shared what attracted him to the cloud was the ease of accessing his information from anywhere, without having to carry backup files or worrying about his desktop computer crashing.

VS provided the strongest case for the ease-of-access argument as the motivation to use a cloud application. VS stated that the opportunity to use a cloud application transformed her life and her practice. VS said, "moving to the cloud transformed my life and my practice".

Having the ability to access her business application from anywhere was "truly phenomenal." She enjoyed the cloud application options that allowed other apps to sync with the applications. This extended the functionality of the cloud applications; a feature that might be limiting in one application could be enhanced by syncing the application to another platform that was more robust. This made her work easier and ultimately translated into financial value creation for her business—she did not have to purchase

standalone products but adopted the cost-effective approach of syncing her existing application with other systems that she needed.

Easy to use. Ease of use, or usability, was the second most-often selected benefit of using a cloud application. Participants CT, CO, FK, FL, FO, JA, LS, MC1, MC2, and RC selected ease of use as a benefit of cloud applications. CO said that cloud applications had enhanced navigation features that made it easy to use the applications. In CO's words, cloud applications "cut out a lot of unnecessary things and provide faster and easier way to navigate to get to what is most important to get work done." FL said she liked the interface of cloud applications that made it easy for her to navigate around the application to complete her tasks. JA agreed that cloud applications made it easy for him to work with his files. JA said what attracted him to the cloud was,

> The ease of working with my files. The ease of accessing your information anywhere, without any backup or without your computer crashing.

MC2 observed that cloud applications were easier for her to use because they made her work less burdensome. Her accounting system, QuickBooks Online, a cloud-based business application, allowed her to connect the application to her bank through a bank feed system. Her bank transaction details were fed directly from the bank to the accounting system, which saved her from manually entering the bank transactions into her accounts. The bank feed process was smooth and seamless and provided an easy process for her to bring her bank transactions into her accounting system. MC1, a small business owner, noted that easy customer setup made cloud applications easy for him to use. The user-friendly features of cloud applications made it easy for him to set up new customers in his system. RC, who was the treasurer for her church, summarized the ease-

of-use benefit as an important motivation to move to the cloud and described her positive experience about using cloud applications by stating, “I love it because it is easy to use.”

Convenience. The analysis showed that convenience associated with using cloud applications was a major attraction of business owners to the cloud. Participants CA, CO, FO, JA, MC1, MC2, RC, and TS noted that convenience attracted them to the cloud. CA said that the cloud environment allowed him to work from home. CA was no longer required to commute long distances to a physical office location to do his work. The cloud environment allowed CA to remotely access all the applications he needed to do his work so he could get his work done from home. This convenience was a major attraction for him to work in the cloud. Similarly, CO found the cloud environment a convenient way to work with coworkers and friends. She could easily share information with other people from multiple locations. FO said cloud applications were “convenient,” allowing her to share files effortlessly with her customers; FO was able to provide system access to some of her customers, thus boosting information sharing. The convenience that cloud applications provided regarding information sharing attracted her to the cloud, and this was also FO’s motivation to continue to use cloud applications.

Flexibility. Several research participants mentioned flexibility as a benefit that made their cloud experiences positive. Participants FK, FL, FO, LS, MC1, RC, TS, and VS noted flexibility was a benefit of cloud application that provided them with positive experiences in the cloud. For example, the flexibility of cloud applications allowed FK to convert a generic, off-the-shelf software program into anything he wanted. He used Efforts to Outcomes (ETO) software, a cloud-based business application, to create a

database for Baltimore Healthy Babies to track attendance at schools and charity events. In addition, FK used a cloud application to manage housing interventions to determine how the outcome of an asthma-related home intervention, for example, could affect the health of the child and the child's school attendance. The cloud application flexibility allowed FK to customize the software to address his needs.

Similarly, FO liked the flexibility that cloud applications provided for her to log into different devices at the same time from multiple locations. This allowed her to make the application available to multiple customers at the same time, thus enhancing her positive experience in the cloud. LS liked the flexibility of not being tied down to desktop software; she could remotely access a cloud-based business application. MC1 appreciated the flexibility of being able to access his client information even when he was traveling at an out-of-town conference. This flexibility allowed him to serve his clients around the clock without having to be at his physical office. TS mentioned that flexibility attracted her to the cloud because she could use her application anywhere without having to worry about location limitations.

Timesavings. The opportunity to save time was noted by participants as a benefit that improved their experience in the cloud. Participants FK, FL, FO, LS, MC1, RC, TS, and VS mentioned that timesavings created financial value for their operations. CA, an IT professional working on several government contracts, noted that most applications ran on servers, which could be virtual machines or physical machines. For cloud applications, the location of the servers did not matter because once CA logged into the cloud space, he simply had to click around to get to the portion of the application for his work, which

saved a lot of process time compared with the traditional operating environment. In CA's words, "This saves hours and hours of time needed to access the application, and this is why I like using the cloud structure compared to traditional."

DA noted that cloud applications such as Docusign allowed him to electronically sign secured documents. Exchanging documents with other businesses saved him a lot of time and money. FK liked the timesavings that cloud applications provided. JK pointed out how she saved a lot of time for her clients by introducing them to cloud applications such as Bill.com and Hubdoc. MC2 loved the timesavings that resulted from not having to manage complex technology infrastructure; she simply connected to cloud applications to do her work. MC1's timesavings came from easy customer setups with cloud applications because he no longer had to spend a lot of time on setting up new customers. TS found timesavings in no longer being required to install software on her desktop to work; she simply logged into the cloud. TS no longer worried about software updates or whether the software version she was using was current, which saved her money and time.

Drivers of negative experience in the cloud. Despite the several themes that enhanced participants' positive experience in the cloud, participants also noted that some of these themes could negatively affect a cloud user's experience when not properly managed. FK, for example, lamented that the flexibility of cloud applications allowed users to access the application even after work hours, which could have a negative impact on work-life balance. A user could be "connected" to work all the time and unable to "unplug" to enjoy time with his or her family. According to FK,

> A dislike of cloud applications is the potential to work during after work hours since the application is accessible all the time. Clients can reach out after work hours and the user may be tempted to access the application during after work hours to work, which is a risk to work-life balance.

MC1 shared a similar dislike about cloud applications that negatively affected his experience in the cloud. He noted that cloud applications made it difficult to stay away from work; he repeatedly received alerts on his cell phone when customers needed assistance; he was always tempted to log into the application to respond to customers, irrespective of the time or location. This temptation negatively affected his cloud experience and after-work life. He viewed this nuisance as an extension of his work life. The cloud environment allowed him to pull client records from "everywhere." He could answer client questions from "anywhere," and this feature unintentionally extended his work hours.

Summary of findings for Research Question 1. To summarize, five prominent themes emerged from the data analysis—easy access, ease of use, convenience, flexibility, and timesavings—that positively affected the experiences of cloud application users. These elements, to a large extent, saved time and money for cloud users, which introduced efficiency in their operations and ultimately created financial value for their businesses. Most participants interviewed were aware of risks of operating in the cloud, including security concerns, but revealed that for them, the benefits of operating in the cloud outweighed the security risks of operating in the cloud. Despite these security risks, they would still operate in the cloud. CT confidently noted that the benefits of the cloud outweighed the risks in the cloud. CA and MC1 agreed that the benefits of the cloud outweighed any security fears that might exist in the cloud.

Despite positive experiences in the cloud, some participants revealed that the flexibility of cloud applications sometimes negatively affected their work-life balance. They were tempted to continue working after work hours because they could access the cloud applications at any time to respond to client needs. It is worth noting that some participants did not find anything to dislike about cloud applications. LS, for example, stated, "I just like the online platform, more opportunities. I just like everything about it."

Overall, cloud users had positive experiences in the cloud. Some participants, such as JA, scored their positive experiences as 10 on a scale of 1 to 10, where 10 was the highest positive experience. MC1 and LS also scored their experiences as 9 out of 10. The participants affirmed that their experiences in the cloud had been mainly positive, and cloud applications created financial value for their businesses through efficiency and timesavings.

Research Question 2

Research Question 2 was "What do business owners perceive as opportunities for businesses to move their business applications to the cloud?" This question was designed to explore the opportunities that existed in the cloud from the perspectives of business owners. Analysis of interviews and field notes revealed three themes: Opportunities in the cloud included costs savings, efficiency, and easy collaboration.

Cost savings as an opportunity in the cloud. Participants revealed several cost-savings opportunities in the cloud that could incentivize business owners to move their business operations to the cloud—especially minority small business owners with limited resources to invest in quality technology resources who still desired high quality

technology systems to help their businesses grow and succeed. Participants CT, CA, CO, DA, FK, FL, FO, JK, JA, LS, MC1, TS, and VS said they found cost-savings opportunities in the cloud. For example, CA noted that in his federal contracting work, most of the activities were being moved to the cloud because this move saved his company a lot of money. CA expanded on his motivation for the move to the cloud by explaining that with the cloud environment, all data centers and servers were hosted in the cloud by vendors such as Amazon and Microsoft. The cloud vendor was then responsible for managing the cloud infrastructure, thereby saving the cloud users money on technology costs; there was no need to spend money on in-house technology staff and systems. These cost savings opportunities relieved resources that could be used to grow and expand business operations.

JK, a small business owner, said with the cloud environment, the applications were essentially maintenance-free because the cloud user was not required to pay software maintenance costs. The cloud provider maintained the cloud platform, and this saved money for the cloud user. JK also noted that the efficiencies in the cloud allowed her to complete tasks in less time, thus creating cost savings for her and her clients. She found several value-add automated processes in the cloud environment, such as automating transaction processes, and these features generated several cost-savings opportunities for her business.

Efficiency as an opportunity in the cloud. Participants noted efficiency created several cloud opportunities for their businesses. Participants CT, CA, FL, JK, JA, LS, MC1, MC2, RC, TS, and VS said efficiency of cloud applications gave them

opportunities to improve their business processes. For example, JO was able to manage all his clients in one place. Instead of having physical client files at multiple places, which made searching for client information time consuming and labor intensive, with cloud applications, JO could save client information electronically on the cloud, which created a framework for efficiently managing his client files. MC2 agreed that efficiency offered her unique opportunities to make her business better. By using a cloud application, she could have all her transactions maintained in one place. MC2 could generate invoices and manage both customers and vendors more efficiently. This created value for her business and positioned her business to grow and succeed. Regarding efficiency, CA said,

> With servers located off-site and their management left to an experienced provider, Cloud-based business allows you to focus on what you do best running your business. Because resources in the cloud can be accessed as needed, the time it takes to get started with these services shrinks from days to minutes. For small businesses wanting to stretch their resources and be more competitive, working in the cloud-base business application is becoming a must.

RC said that cloud application provided ways that were more efficient to keep track of the activities for her organization. This included money received from members of her organization and payment records for vendors who transacted business with her organization. The cloud application allowed RC to process the information efficiently. She could generate accountability reports to discuss with the leaders of her organization. VS found efficiency in cloud applications through a vendor payment process. By using a cloud-based business application such as Bill.com, she no longer had to print checks but could pay vendors electronically. In her own words, this was a "game changer." She loved the capability to move away from paper checks and touted this as a new efficiency

level for her business. This offered her business an opportunity to become more competitive by offering better service to her customers. This had positioned her business to thrive.

Easy collaboration as an opportunity in the cloud. The analysis showed that easy collaboration created opportunities for businesses owners in the cloud. Participants CO, FL, FO, JA, MC2, TS, and VS said that easy collaboration created opportunities for them in the cloud. TS used the collaborative opportunities of cloud applications to work with multiple people in the same system. With cloud applications, she was no longer restricted to the physical locations of her clients but could work with clients across multiple locations on her cloud application platform. For MC2, the collaborative opportunities that cloud applications offered her included being able to link everything together in one place. MC2 used to process her business transactions through Excel spreadsheets. When she moved to the cloud, she was able to automate her transaction process, and she could now easily pull reports and share the reports with other people. This had improved her business.

Similarly, VS found unique collaboration opportunities in the cloud, including the capability to sync several systems across multiple platforms. This extended the kinds of products and services she could offer to her customers. With the syncing feature of cloud applications, VS could leverage the strength of multiple systems to make high quality services available to her customers. For example, she was now able to sync her accounting application to bill payment platforms such as Bill.com and payroll processing platforms such as Intuit Payroll. This connection allowed her to offer bill payment and

payroll processing services to her clients. These were new opportunities that provided new revenue streams for her business. She noted how these collaborative opportunities provided by cloud applications had literally grown and expanded her business.

Summary of findings for Research Question 2. Participants generally perceived that cloud applications provided opportunities that could motivate business owners to move their business applications to the cloud. Major themes that emerged from the data analysis included costs savings, efficiency, and easy collaboration. Most participants believed that cloud applications minimized the need for in-house technology staff and systems because the cloud service providers bore the burden of maintaining the cloud infrastructure. This saved money for business owners in terms of reduced technology costs. In addition, the cloud applications did not require maintenance, upgrades, and updates because the cloud services providers were responsible for maintaining these applications. This saved time and costs for business owners who were able to invest the resources made available with the move to the cloud to grow and expand other areas of their businesses.

The participants agreed that efficiency and easy collaboration in the cloud provided opportunities for their businesses. Efficiency gave them the opportunity to automate several of their transactional processes, and this saved them both time and money. In addition, the business owners found collaborative opportunities in the cloud, which allowed them to work more effectively with their clients from multiple locations by easily sharing files and accessing systems. These opportunities both improved the business operations of these business owners and created opportunities to offer new and

improved products and services, such as vendor payment systems through Bill.com and payroll services through Intuit Payroll, to their customers. These opportunities in the cloud positioned the businesses of these business owners to grow and thrive in a competitive business environment.

Research Question 3

Research Question 3 was "What do business owners perceive as challenges in moving their business applications to the cloud?" This question was intended to explore the challenges that might exist when operating in the cloud, with a focus on the security risks that threatened to produce negative experiences with the cloud for business owners. I conducted an analysis of the interview transcripts and field notes. The themes that emerged from the data analysis showed two major viewpoints by business owners with respect to perceptions of security concerns associated with operating in the cloud. Nine participants were concerned about security risks of operating in the cloud; while six participants said that they were not concerned about security risks of operating in the cloud.

In this section, I also consider measures such as gaining education and exercising due diligence involving cloud service provider selection. Participants shared measures that could be implemented to address and minimize security risks of operating in the cloud.

Participants who were concerned with security in the cloud. Participants CT, CA, CO, DA, FL, FO, JK, MC1, and MC2 confirmed they had security concerns about operating in the cloud. These security concerns included fears about data compromise,

data breaches, and hacking risks. MC1 viewed the major security problem as hacking. He was concerned that unauthorized parties might break into his data by overriding his password protections. MC1 was doubtful whether the traditional strong and secure passwords being recommended by security experts were truly secure and strong enough to withstand hackers' efforts to break into cloud applications. MC1 said he would be more comfortable operating in the cloud if cloud providers could guarantee they could prevent hackers from breaking in to access his records.

FO considered the possibility of an unauthorized person accessing her records in the cloud as "scary." She referred to recent incidents in which hackers accessed millions of e-mails of Yahoo account holders as "unacceptable." She was fearful of the fact that there were "evil people" who were working daily to hack into other people's records. She considered the risk level in the cloud high. In contrast, JK noted that she was concerned about security risk in the cloud but not overwhelmingly concerned. She argued that she had used online banking for 20 years without experiencing any data breaches of her account. She was realistic that data breaches remained a "formidable threat," but she would not allow that threat to prevent her from using cloud applications. Similarly, FL observed that security was always a concern for her but she minimized the risk by keeping her passwords safe and changing them often. FL joked that if Target was getting hacked, and Hillary Clinton was getting hacked, then "why in the world" should she allow hacking threats to prevent her from using cloud applications?

DA was most concerned about inside threats occurring because cloud service providers shared resources; this common platform could make it easier for unscrupulous

people to access his data. DA set up appropriate firewalls and other parameters to protect his data. CA observed that data breach was a concern. CA said,

> Data breach is a concern. Cloud environments face many of the same threats as traditional corporate networks, but due to the vast amount of data stored on cloud servers, providers become an attractive target. The severity of potential damage tends to depend on the sensitivity of the data exposed. Exposed personal financial information tends to get the headlines, but breaches involving health information, trade secrets, and intellectual property can be more devastating to the affected businesses.

Cloud environment users faced many of the same threats as traditional corporate network users, but because of the vast amounts of data stored on cloud servers, providers were attractive targets. CA noted the severity of potential damage tended to depend on the sensitivity of the data exposed. Exposed personal financial information tended to get the headlines, but breaches involving health information, trade secrets, and intellectual property could be more devastating to the affected businesses.

Participants who were not concerned with security in the cloud. Participants CA, FK, JA, RC, TS, and VS said they did not have security concerns about operating in the cloud. VS said security in the cloud did not concern her and noted people who believed traditional desktops were more secure than the cloud environment were only "fooling" themselves. TS said security in the cloud did not bother her because she trusted cloud service providers to secure and back up her data. RC observed that she had no reason to suspect that someone would intentionally compromise her data. She thought about the possibility of data compromise occasionally but she was aware that she had no control over the situation.

LS said she was not concerned about security or data breaches. She believed that security in the cloud had improved over the years. She noted that data breaches could occur anywhere; in fact, physical office locations had increased risk for data breaches. She described a scenario in which a thief could break into her office and steal her computer. She was therefore convinced that security risk existed everywhere; thus, she was not particularly worried about security concerns in the cloud. JA, who had been using cloud applications for over a decade, said he was no longer concerned about security in the cloud. He had been using cloud applications for several years and had not experienced any security issues.

To move or not to move to the cloud in the midst of security risk. Regarding the question of whether new business owners who were considering moving to the cloud should move to the cloud given potential security concerns, 11 out of 15 participants agreed that they would recommend moving to the cloud. Participants CT, CA, FK, FL, JK, JA, LS, MC1, MC2, RC, and TS agreed that new users should not be swayed by perceptions of security challenges in the cloud; they should move to the cloud to enjoy the benefits of cloud applications. CT suggested that small business owners should not listen to other people who exaggerated security risks in the cloud. CT said,

> I will advise any new person who is considering whether to move to the cloud that the benefits outweigh potential security risks in the cloud and therefore it makes sense to move to the cloud.

RC recommended that small business owners should move operations to the cloud because it was more functional than desktop-based software. JA advised people to move

to the cloud because they would not have to worry about their computers crashing or deal with backups that overshadowed potential security threats.

FK pointed out that service continuity was a strong argument for businesses to move to the cloud even in the midst of security concerns. He said cloud applications did not rely on physical servers to function, and business operations could continue in the event of a natural disaster. He cited the example of a company in Ellicott City, Maryland, whose offices had flooded. According to FK, the business was open for business the next morning because this business operated its applications in the cloud. It would have taken days, even weeks, for an affected business that relied on traditional physical servers to return to business. FK concluded that the cloud application environment ensured service continuity for businesses; thus, it made sense for businesses to move to the cloud.

Education as a preventive measure to minimize security risks. Some of the participants recommended that good educational resources should be made available to cloud application users to educate them about opportunities and challenges of operating in the cloud. Participants CA, CO, and JA said education could help alleviate a lot of the misconceptions about cloud applications and allow users to learn the facts about the cloud environment. CA noted many people were scared about security in the cloud because they were not knowledgeable about cloud security issues. He said if people would take the time to educate themselves and read through the security documentation from cloud service providers such as Amazon and Microsoft, they would have their security concerns alleviated. They would learn of the several security measures that were

available to protect their data. He concluded that good education would generate confident business owners who possessed the resources needed to move to the cloud.

JA encouraged people to educate themselves on security measures available to make their cloud experience safer. CA suggested that people should educate themselves on the technology that they were using and ask the right questions about best practices and how their information could best be protected. She said such educational resources would minimize the fear people had about cloud security, create confidence in cloud application users, and equip them with good knowledge on how to handle security issues in the cloud most effectively.

Provider selection due diligence as a preventive measure to minimize security risks. An interesting concept that emerged from the data analysis was the idea of performing due diligence when selecting a cloud provider as a way to minimize security risks. CO advised that users should do their own due diligence when selecting a cloud service provider. In other words, users should do their own research and not simply leave security issues to cloud service companies. She noted it was important for users to acquaint themselves with cloud security measures intended to protect their data. LS pointed out that her first advice to any new cloud user would be to do their due diligence when selecting a cloud provider. She also advised that cloud application users should select cloud service providers with good customer support so that in the event of security issues, the cloud user could receive the best support available to resolve the issues adequately.

Summary of findings for Research Question 3. Regarding the data analysis of perceptions of security challenges in the cloud, participants were almost evenly split on whether they were concerned about security risks in the cloud. However, majority of the participants indicated they would not allow security concerns to prevent them from operating cloud-based business applications. On the contrary, they would advise small business owners to overlook the perceived security risks and move to the cloud to enjoy the benefits of operating in the cloud. Participants had diverse views on how to address security challenges in the cloud; however, two interesting themes that emerged as viable measures to minimize security risks in the cloud were gaining education and performing due diligence on provider selection.

Participants recommended that cloud users educate themselves on security issues in the cloud. This knowledge would inform them about measures available to address security issues in the cloud properly. Participants also advised that cloud users should exercise due diligence when selecting cloud service providers. They suggested that cloud users should do their own research about cloud service providers and select service providers who had good customer support and possessed the resources to address security issues when necessary.

Research Question 4

Research Question 4 was "How does operating a business application in the cloud create financial value?" The objective of this question was to discover how operating business applications in the cloud could create financial value for businesses under the CAPEX versus OPEX capitalization models for financial value creation, which grounded

the conceptual framework of this study. The analysis showed that all the participants felt that financial value was important to them, and 80% of the participants believed cloud applications created financial value for their businesses. Specifically, Participants CT, CA, CO, DA, FK, FL, JA, LS, MC1, MC2, TS, and VS confirmed that cloud applications created financial value for their businesses.

How cloud applications created financial value for businesses. LS explained that financial value was always important for her business. She always explored opportunities to manage her costs, including technology costs, and found that it was less expensive to move to the cloud. She noted users typically paid small monthly fees to use the resources in the cloud. Further, she noted that software could be expensive for organizations; however, with cloud applications, there was no need to buy expensive software upfront. This allowed her to have lower technology expenses on her books, which improved the profitability on her income statement and financial value on her balance sheet. On financial value creation, CA said,

> Cloud-based business application services can help you save money on many fronts, including server maintenance, power and cooling costs, and software licensing and upgrade expenses. Rather than spending money to maintain hardware that often goes unused, subscribing to software and services for a low monthly fee can help small businesses stretch their budgets further. Along with the ability to scale up to meet increased demand, the cloud also allows you to scale down during slower periods (e.g., remove users or use less storage space), saving your business money.

Regarding whether financial value was important for her business, VS responded, "Oh, yeah. I wanna save. Yeah. Absolutely." TS agreed that cloud applications provided her with less expensive solutions for technology resources because they had lower maintenance costs; this reduced the overall costs on her books, which created financial

value for her business. MC1 pointed to a financial value creation opportunity consisting of a wholesale billing system using QuickBooks Online, which allowed him and his clients to enjoy large group discounts for the cloud applications they used. He enthusiastically exclaimed that this cost savings opportunity in the cloud had been a "tremendous help" to him and his clients. FK found financial value in the cloud in the more efficient way cloud resources were launched. He did not need to spend several hours installing and managing software on individual employee computers, and these timesavings resulted in lower costs for his operations, which created financial value for his business.

Subscription model as a cost-effective approach to acquire technology resources. A strong theme that emerged from the data analysis was how the subscription model, which allowed cloud application users to pay low monthly fees to use technology resources, provided a cost-effective approach for small business owners who wanted to access high-quality technology resources to grow their businesses. RC said she preferred the subscription model because it allowed her to spread technology cost over the year by paying small monthly fees. LS responded that she liked the subscription model, which allowed her to pay on a monthly basis because it allowed her to manage her costs more effectively, instead of paying one time for software that she would be using for several years. JA said he preferred to pay monthly fees for his business applications through the subscription model. JK said she would "rather pay as I go." FO confirmed that for small business owners, it made sense to choose the subscription model because it did not require "putting a lot of money upfront" to acquire technology resources. FO said that

choosing the subscription model freed money for small business owners to invest in other projects; there was no need to lock up capital on upfront software purchases.

It should be noted, however, that not all the participants agreed that the subscription model was a permanent solution for businesses of all sizes. MC1 clarified that even though he preferred the subscription model as a cost-effective approach for small businesses, if adequate resources were available, then it might make more sense to buy software upfront because the subscription model could have interest fees braided into the periodic payments. FK noted that the decision on whether to pay for software upfront or use the subscription model depended on the type, size, and needs of the business. He cautioned that the monthly subscription fees could add up and become expensive. He recommended that business owners perform a cost-benefit analysis to determine which model better served the needs of the business.

Summary of findings for Research Question 4. In determining whether cloud applications created financial value for businesses, the analysis showed that the opportunity to pay monthly fees through the subscription model allowed business owners to spread their technology costs over time and provided a cost-effective approach to acquire technology resources, thus creating financial value for businesses. In addition, the low maintenance cost and reduced installation time needed to launch cloud applications made business owners more efficient at managing technology costs. These cost-effective approaches improved the profitability of businesses on their income statements and created financial value on their balance sheets.

Summary

In Chapter 4, I described how the research was executed and presented the findings that emerged from the analysis. Research Question 1 concerned the lived experiences of business owners who operated business application in the cloud and indicated whether the benefits of operating a business application in the cloud (including the potential for financial value creation) outweighed concerns about operating in the cloud, especially regarding security risks. Transcripts from the interviews and field notes were analyzed in response to this question. I found participants mostly had positive experiences with operating in the cloud. Participants agreed that the benefits of operating in the cloud outweighed potential security risks of operating in the cloud. Themes representing business owners' positive cloud experiences included easy access, ease of use, convenience, flexibility, and timesavings.

Research Question 2 was designed to explore the opportunities associated with operating in the cloud from the perspectives of business owners. An analysis of interview data and field notes showed several opportunities existed in the cloud for business owners. These opportunities included costs savings, efficiency, and easy collaboration.

Research Question 3 involved discerning the challenges that might exist in the cloud, with a focus on the security risks that threatened to create negative experiences for business owners operating in the cloud. Analysis of the data and field notes showed that participants were almost evenly split on whether they were concerned with security in the cloud. Participants noted that measures such as educating themselves and performing due

diligence regarding cloud service provider selection could minimize security risks of operating in the cloud.

Research Question 4 was intended to show how operating business applications in the cloud could create financial value for businesses under the CAPEX versus OPEX capitalization models for financial value creation, which underpinned the conceptual framework of this study. The analysis showed that majority of the participants believed cloud applications created financial value for their businesses.

The overall question was whether drivers of positive experience—as represented by the emerging themes of easy access, ease of use, convenience, flexibility, and timesavings—created financial value for small business owners. The question was answered based on the analysis and findings derived from the experiences of business owners when using cloud-based business applications. In addition, I sought to determine whether opportunities gained while operating in the cloud—for example, cost savings, efficiency, and easy collaboration—motivated business owners to move their business applications to the cloud. Further, I investigated whether security risks in the cloud prevented business owners from moving their business applications to the cloud. Finally, I questioned whether cost-effective approaches to acquiring technology resources such as the subscription model for accessing cloud resources created financial value for businesses.

In Chapter 5, I discuss the emerging themes in the context of the literature on the financial value of cloud-based business applications. Specific recommendations are made

to affirm the importance of the study for social change. Recommendations for further research are presented.

Chapter 5: Discussions, Implications, and Recommendations

Introduction

The purpose of this study was to obtain a deeper understanding of the financial value of cloud-based business applications from users' perspectives. To that end, I focused in detail on how the experiences of small business owners who operated business applications in the cloud created financial value for their businesses. I designed the following questions to guide the study:

1. What are the lived experiences of business owners who operate business applications in the cloud in terms of creating financial value despite security concerns?
2. What do business owners perceive as opportunities for businesses to move their business applications to the cloud?
3. What do business owners perceive as challenges in moving their business applications to the cloud?
4. How does operating a business application in the cloud create financial value?

Context of Study

I determined that the qualitative phenomenological methodology was the most appropriate method to ground the research given the type of data required and the purpose of the study, which emphasized the lived experiences of minority small business owners who operated in the cloud. The transcendental phenomenological approach is recommended for solving novel problems and discovering truth through understanding the lived experiences of people (Husserl, 2011). Detailed experience-based information

was needed needed so that I could develop an understanding of the phenomenon being studied, and would not have been available if I were to have used a quantitative survey (Apori-Nkansah, 2008).

Two data sets were used for the study: interviews and field notes. The 15 participants were all cloud-applications users comprising 10 business owners, three IT professionals, and two users who were neither business owners nor IT professionals. Participants were selected through purposeful sampling because they had experienced cloud applications and were therefore qualified to provide relevant information. I engaged participants in interviews, which lasted about 30 minutes, to discuss their experiences regarding the use of cloud-based business applications. My observational field notes were included in the analysis. Coding was conducted using *in vivo* and pattern coding approaches, and the analyses included detailed description, categorical aggregation, and direct interpretation. Findings were validated using multiple sources of data and member checking.

This chapter consists of three sections. In the first section, I discuss the findings of the study. The second section provides the implications of the study for social change with a specific focus on minority small businesses and how cloud computing impacts minority communities. In the final section, I make recommendations for future research.

This study was grounded on the conceptual framework of Modigliani-Miller's (2003) theorem on appropriate capital structure using debt and equity, and Brealey and Young's (1980) concept of financial leverage. These frameworks were applied from the perspective of how CAPEX and OPEX models of acquiring technology resources—with

an emphasis on how the subscription model, which falls under the OPEX model—were used by business owners to create financial value for their businesses through cost-effective technology resource acquisition opportunities. The study was not designed to test any particular theory. Rather, I explored opportunities and challenges for creating financial value in the cloud through the lens of the conceptual frameworks, as viewed by participants who were interviewed regarding their experiences. Because of the open-ended nature of the interview questions, participant answers were not specific; therefore, I used emerging themes from the data analysis to develop the findings of this study.

The findings from this phenomenological study represent a collection of opportunities and challenges related to operating business applications in the cloud, as experienced by the participants. I show how these opportunities and challenges collectively form a knowledge base that owners use to create financial value for businesses. The study's findings contribute to the knowledge base on financial value creation. This knowledge contribution is based on users' practical experiences with the phenomenon. This study has value for small business owners contemplating moving operations to the cloud or wishing to learn how to utilize cloud-based business applications to create financial value. In the following discussion, I outline the collective opportunities and challenges that the participants identified as they shared from their experiences as business owners.

Discussions of Findings

Research Question 1

Research Question 1 was, "What are the lived experiences of business owners who operate business applications in the cloud in terms of creating financial value despite security concerns?" I found that participants mostly had positive experiences with operating in the cloud. They agreed that the benefits of operating in the cloud outweighed its potential security risks. Themes that I identified as contributing to the positive experiences of business owners in the cloud included easy access, ease of use, convenience, flexibility, and timesaving. These elements created financial value for business owners.

Drivers of positive experience as creators of financial value. Answers to Research Question 1 showed that the drivers of positive experiences with the cloud—easy access, ease of use, convenience, flexibility, and timesavings—created financial value for businesses. This practical revelation made logical sense. When business applications were easy to access, easy to use, convenient, flexible, and saved time, business owners were happy and satisfied. This happiness and satisfaction equipped the business owners to offer better products and services to their customers. Happy and satisfied customers generated increased revenues for businesses by nurturing an environment for customer growth. Thus, businesses could sell more to this growing customer base. This trend could increase the revenue stream for businesses, which in turn could grow the revenue side of the income statement.

On the expense side of the income statement, flexibility and timesavings reduced the time and costs required for completing tasks, thus producing new efficiencies. This reduced cost of doing business translated into lower expenses, which improved the expense side of the income statement through better-managed cost methodologies. Increased revenues and reduced expenses meant businesses were profitable. Profitability could create financial value for businesses on their balance sheets. This opportunity to grow was especially important for the minority small business owner who sought opportunities to thrive in a competitive business environment.

The findings for Research Question 1 affirmed that business owners were aware of the risks of operating in the cloud, including security concerns, but believed that the benefits of operating in the cloud outweighed the security risks; they would operate in the cloud despite these security risks. Further, the findings for Research Question 1 showed that business owners had positive experiences with the cloud. The drivers of these positive experiences—specifically, easy access and timesavings—created financial value for businesses. In addition, the findings for Research Question 1 affirmed that the perceived security risks in the cloud would not prevent business owners from moving to the cloud because business owners believed that the benefits of operating in the cloud outweighed the security risks of operating in the cloud.

In conclusion, the findings answered Research Question 1: Drivers of positive experience in the cloud—such as easy access, ease of use, convenience, flexibility, and timesavings—created financial value for small business owners. These findings indicate that a decision to move to the cloud-based business applications led to positive

experiences for these business owners, and that the participants overcame perceived security risks and gained benefits of operating in the cloud to create financial value for their businesses.

Research Question 2

Research Question 2 was, "What do business owners perceive as opportunities for businesses to move their business applications to the cloud?" Responses from participants showed that several opportunities exist in the cloud for business owners. These opportunities included costs savings, efficiency, and easy collaboration.

Opportunities in the cloud. Opportunities in the cloud included costs savings, efficiency, and easy collaboration. Business owners believed that there were benefits when they moved their business applications to the cloud. Using cloud applications minimized the need for in-house technology staff and systems because the cloud service providers bore the burden of maintaining the cloud infrastructure. This saved money for business owners in terms of reduced technology costs. In addition, using cloud applications did not require maintenance, upgrades, and updates because the cloud services providers were responsible for maintaining these applications. This saved time and costs for business owners who were able to invest the resources made available with the move to the cloud to grow and expand other areas of their businesses.

Further, efficiency and easy collaboration in the cloud provided opportunities for participants' businesses. Efficiency gave them the opportunity to automate several of their transactional processes, thus saving them both time and money. In addition, the business owners found collaborative opportunities in the cloud, which allowed them to

work more effectively with their clients from multiple locations by easily sharing files and accessing systems. These opportunities both improved business operations and created opportunities for participants to offer new and improved products and services, such as vendor payment systems through Bill.com and payroll services through Intuit Payroll, to their customers. These opportunities in the cloud positioned the participants' businesses to grow and thrive in a competitive business environment.

In summary, the findings answered Research Question 2: Opportunities gained from operating in the cloud—for example, cost savings, efficiency, and easy collaboration—motivated business owners to move their business applications to the cloud. These findings can serve as a guide for small business owners who may be contemplating moving operations to the cloud by providing them with factual information regarding moving their business operations to the cloud.

Research Question 3

Research Question 3 was "What do business owners perceive as challenges in moving their business applications to the cloud?" Business owners were almost evenly split regarding concerns about security in the cloud. About half of the participants said they were concerned with security in the cloud; the others said either they were not concerned with security threats related to operating in the cloud or were minimally bothered by security threats of operating in the cloud.

Measures to minimize security risks of operating in the cloud. Business owners used security measures such as stronger passwords, not sharing passwords, changing passwords frequently, and building firewalls as measures to minimize security

risks of operating in the cloud. Although most of the business owners had used cloud applications for several years without experiencing any security breaches, I found that business owners were in most cases aware of security threats of operating in the cloud and adopted common sense approaches such as using secured passwords to protect their data from security breaches and data compromise.

Contrary to several researchers, such as Lemoudden et al. (2013) and Babu et al. (2013), who emphasized potential security risks of operating in the cloud, expressing concern that security threats were preventing business owners from moving to the cloud to enjoy the benefits in the cloud, the findings from this study indicated that cloud users were not overly concerned about security issues associated with operating in the cloud. In fact, participants felt security risks of operating in the cloud were at manageable levels, and these risks did not prevent business owners from moving to the cloud.

Education and due diligence on cloud service provider selection. Further, gaining education and performing due diligence on cloud service providers were effective tools for overcoming security challenges of operating in the cloud. Data from this study showed that when people took the time to educate themselves and read through the security documentation from cloud service providers such as Amazon and Microsoft, their security concerns were alleviated. They learned about security measures that were available to protect their data. Participants believed education would generate confidence in users and provide them with the resources they needed to move to the cloud. In addition, participants felt performing due diligence when selecting a cloud provider was

an effective approach to minimize security risks. Participants recommended that cloud users do their own due diligence when selecting a cloud service provider.

In summary, the findings answered Research Question 3: Security risks in the cloud did not prevent business owners from moving their business applications to the cloud. These finding could be comforting for small business owners by providing assurance that effective measures exist to overcome security challenges of operating in the cloud.

Research Question 4

Research Question 4 was "How does operating a business application in the cloud create financial value?" Cloud-based business applications created financial value for businesses through the subscription-based model of acquiring technology resources. The opportunity to pay monthly fees through the subscription model allowed business owners to spread their technology costs over time and provided a cost-effective approach to acquire technology resources to create financial value. In addition, the low maintenance costs and reduced installation time needed to launch cloud applications helped business owners be more efficient at managing technology costs; these cost-effective approaches improved the profitability of businesses on their income statements and created financial value on their balance sheets.

The subscription model and financial value creation. The subscription model was an effective approach for creating financial value for businesses. The subscription model allowed cloud application users to pay low monthly fees to use technology resources, thus providing a cost-effective approach for small business owners to access

high-quality technology resources to grow their businesses. Business owners were able to spread technology costs over several periods (typically monthly) by paying small monthly fees. Business owners liked the subscription model because it provided an opportunity for them to manage their technology costs by paying on a monthly basis instead of paying one time for software that would be used for several years. The subscription model did not require "putting a lot of money upfront" to acquire technology resources, and this was good news, especially for small business owners who may not have abundant resources available. The subscription model freed up money for small business owners to invest in other projects, thus making it unnecessary to lock up capital on upfront software purchases.

In summary, the findings answered Research Question 4: Through cost-effective approaches to acquiring technology resources, such as the subscription model for acquiring cloud resources, cloud applications created financial value for businesses. These findings are important especially for minority small business owners who may seek financial creation opportunities to position their businesses to thrive and succeed in a competitive business environment. The findings of this study provide a guide for such business owners on where and how to find financial value creating opportunities.

Conclusion

The findings of this study showed that the experiences of business owners who operated in the cloud were largely positive, and these positive experiences were driven by advantages such as easy access, ease of use, convenience, flexibility, and timesavings. These drivers of positive experiences related to operating in the cloud created financial

value for small business owners. In addition, the findings confirmed that business owners perceived opportunities in the cloud to include cost savings, efficiency, and easy collaboration. These drivers of positive experiences attracted business owners to the cloud; business owners were willing to operate in the cloud despite security risks because they believed that the benefits of operating in the cloud outweighed the security risks of operating in the cloud. These opportunities motivated business owners to move their business applications to the cloud. Further, security risks in the cloud did not prevent business owners from moving their business applications to the cloud. Effective measures for overcoming security challenges related to operating in the cloud included educating cloud users and performing due diligence during cloud service provider selection. Finally, the findings showed that cloud applications created financial value for businesses through cost-effective approaches to acquiring technology resources, such as the subscription model for acquiring cloud resources. These findings provide information that can help business owners decide whether to move operations to the cloud to create financial value for their businesses.

Implications for Social Change

The findings from this study have important implications for social change for minority businesses and the communities in which they operate.

Opportunities for Minority Businesses

The study focused on small businesses, especially minority small businesses, in terms of opportunities that exist in the cloud for creating financial value. Minority small business owners can benefit from the findings from this study by using the findings to

guide their decisions to move to the cloud. Opportunities that exist when operating in the cloud include cost savings, efficiency, and easy collaboration tools. Taking advantage of these opportunities could reduce the operational cost of minority owned businesses while positioning these businesses to increase revenue streams through improved products and services. This has the potential to reduce the failure rate of minority small businesses and equip them with cost-effective approaches to make these businesses more efficient and position them to thrive. Thriving minority small businesses help create better economic opportunities within minority communities, including creating jobs and providing reliable sources of income for minority families. This can build economically strong minority communities.

Education Resources for Minority Businesses

The findings from this study indicate education is needed for business owners to overcome security risks of operating in the cloud. Historically, minority businesses have experienced high failure rates because of limited resources, including both monetary and intellectual capital (Casey, 2012). It is therefore important that minority businesses receive tools to manage the scarce resources available to them cost-effectively. In addition, particular characteristics that make it challenging for minority business owners to obtain capital include low levels of management experience and few years of industry experience (Casey, 2012). These challenges can be overcome if minority business owners inform themselves of available options to network within their environments to gather the resources they need to build their businesses. Effective interaction within the open system is necessary for minority businesses to build and grow their businesses.

This study provides information minority business owners can use to educate themselves about the opportunities and challenges that exist regarding operating in the cloud. The findings from this study can lead to positive social change for minority small business owners who are eager to understand how cloud-based business applications can generate financial value for their businesses. This study provides valuable information for minority small business owners, equipping them to understand the challenges of operating in the cloud, providing information to overcome these challenges, and helping them to grow their businesses with affordable cloud-based information technology (IT) resources. This study not only has the potential to contribute to the growth and success of minority small business owners who use the findings of this study but can also contribute to building better communities and societies in which these minority small businesses are located by providing information that will help these minority-owned small businesses grow and succeed.

Recommendations for Further Research

I offer two recommendations for further research. First, I recommend further research to understand the impact of cloud application use on the work-life balance of users, including the effect of cloud application use on family life. Second, I recommend further research to understand the impact of education on addressing the security concerns of cloud application users.

Further Research on Impact of Cloud Application Use on Work-Life Balance

In the course of conducting this study, I discovered that cloud application use affected participants' work-life balance. Participants revealed that the capability to access

cloud applications from “anywhere” and “anytime” tempted them to access the system during after-work hours. This feature had a potentially negative effect on their work-life balance and family life. The scope of this study did not allow for a thorough exploration of the impact of cloud application use on work-life balance and family life. I believe additional research into this area could yield valuable knowledge to understand the impact of cloud application use on work-life balance and family life.

Further Research on Impact of Education for Addressing Security Concerns

An interesting theme that emerged from this study was how education could address perceived security concerns that existed in relation to operating in the cloud. The scope of this study did not allow for a thorough exploration of the extent to which education could minimize perceptions of security risks of operating in the cloud. I believe that additional research in this area could yield valuable knowledge to understand the impact of education on minimizing security risks in the cloud.

Limitations of the Study

The study was limited based on four assumptions. First, I assumed that participants would respond honestly with no bias when answering the interview questions. Second, in alignment with the theoretical framework, I assumed that other economic and market factors that can influence the profitability of businesses were not relevant to this study. Third, I assumed that business leaders were interested in increasing the financial value of their businesses. Fourth, I assumed that pursuing cost savings was the best approach to boosting profitability.

The research outcome confirmed some of my assumptions and revealed that some of my assumptions were simplistic in nature. For example, participants' responses were subjective, based on their respective experiences; those who had experienced security issues were likely to describe negative experiences with operating in the cloud with respect to security concerns, and participants who had not experienced security issues in the cloud were more likely to describe positive experiences in the cloud with respect to security concerns. How honestly and enthusiastically participants responded to the interview questions was therefore a function of their personal experiences in the cloud. In addition, the study outcome confirmed my assumptions that business leaders were interested in increasing the financial value of their businesses and that pursuing cost savings was a good approach to boost the profitability of businesses.

Summary

This transcendental phenomenological study on understanding the financial value of cloud-based business applications from users' perspectives provided important answers regarding whether drivers of positive experiences when operating in the cloud created financial value for small business owners and motivated them to move their business applications to the cloud. These positive drivers included easy access, ease of use, convenience, flexibility, and timesavings. In addition, I sought to discover whether opportunities gained from operating in the cloud, such as cost savings, efficiency, and easy collaboration, created financial value for small business owners and motivated them to move their business applications to the cloud. I questioned whether security risks associated with operating in the cloud prevented business owners from moving their

business applications to the cloud and whether cost-effective approaches to acquiring technology resources such as the subscription model for accessing cloud resources created financial value for businesses.

The findings showed that the experiences of business owners operating in the cloud were largely positive, and these positive experiences were driven by easy access, ease of use, convenience, flexibility, and timesavings. The findings showed that business owners perceived opportunities in the cloud as cost savings, efficiency, and easy collaboration, and these opportunities motivated business owners to move their business applications to the cloud. The findings indicated that security risks in the cloud did not prevent business owners from moving their business applications to the cloud. Finally, the findings showed that cloud applications created financial value for businesses through cost-effective approaches to acquiring technology resources such as the subscription model for acquiring cloud resources.

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Appendix A: Interview Questions

1. Have you used any cloud-based business application?
2. Describe your experience when you used a cloud-based business application in terms of how you liked or disliked the use of cloud-based business applications.
3. What specific aspect of using a cloud-based business application did you like or dislike?
4. How is financial value important to you?
5. How has the use of a cloud-based business application presented opportunities to you for creating financial value?
6. Considering yourself as a business leader, how has the use of a cloud-based business application improved the operations of your business?
7. What security challenges do you face when using a cloud-based business application?
8. What measures do you believe can be implemented to address your security concerns in the cloud environment?

Appendix B: E-mail Transcript for Invitation to Participate in Research

Hi,

You are invited to participate in a research study that seeks to understand the financial value of cloud-based business applications. The study is conducted by Victor Arthur, a doctoral student at Walden University. You will be interviewed for about 30 minutes as part of the study's data collection process. Your responses to the interview questions will be included in the study to address research questions that will help to develop an understanding of the opportunities and challenges around operating a business application in the cloud. Participants must be 18 years of age.

If you are interested in participating in this study, please review the attached consent form and provide your consent to participate by replying "I consent" to this e-mail.

Thank you.

Sincerely,

Victor Arthur
Doctoral Student
Walden University

Appendix C: Word Frequency Query Result

Word	Length	Count	Weighted Percentage (%)
cloud	5	464	2.71
like	4	225	1.31
business	8	224	1.31
see	3	188	1.10
application	11	187	1.09
software	8	157	0.92
use	3	156	0.91
now	3	154	0.90
think	5	153	0.89
security	8	151	0.88
just	4	136	0.79
able	4	130	0.76
things	6	125	0.73
yes	3	124	0.72
experience	10	119	0.69
time	4	112	0.65
applications	12	111	0.65
people	6	109	0.64
one	3	107	0.62
using	5	103	0.60
based	5	100	0.58
access	6	92	0.54
data	4	92	0.54

Appendix D: Themes Based on Participant Resources

Label	Theme	Sources	References	Participant Responses	Participant Count
a	Convenience	8	20	CA, CO, FO, JA, MC1, MC2, RC, TS	8
b	Cost savings	13	43	CT, CA, CO, DA, FK, FL, FO, JK, JA, LS, MC1, TS, VS	13
c	Easy access	14	35	CT, CA, CO, DA, FK, FO, JK, JA, LS, MC1, TS, VS	12
d	Easy collaboration	8	21	CO, FL, FO, JA, MC2, TS, VS	7
e	Easy to use	9	26	CT, CO, FK, FL, FO, JA, LS, MC1, MC2, RC	10
f	Education	3	9	CA, CO, JA	3
g	Efficient	11	33	CT, CA, FL, JK, JA, LS, MC1, MC2, RC, TS, VS	11
h	File sharing	9	20	CA, CO, DA, FL, FO, JA, MC1, RC, VS	9
i	Financial value	12	18	CT, CA, CO, DA, FK, FL, JA, LS, MC1, MC2, TS, VS	12
j	Flexibility	8	18	FK, FL, FO, LS, MC1, RC, TS, VS	8
k	Move to cloud	11	20	CT, CA, FK, FL, JK, JA, LS, MC1, MC2, RC, TS	11
l	No security concern	9	12	CA, FK, JA, RC, TS, VS	6
m	Opportunities	5	7	CT, FL, LS, RC, VS	5
n	Positive experience	9	20	CO, FO, JA, JK, LS, MC1, RC, TS, VS	9
o	Provider selection	5	10	LS, MC2, MC1, TS, VS	5
p	Saves time	10	35	CA, DA, FK, JK, JA, LS, MC1, MC2, TS, VS	10
q	Security challenge	1	1	CT	1
r	Security concern	9	10	CT, CA, CO, DA, FL, FO, JK, MC1, MC2	9
s	Service continuity	1	7	FK	1
t	Subscription model	12	19	CT, CA, CO, FK, FL, FO, JK, JA, LS, MC1, MC2, RC	12

Appendix E: Code Mapping Showing Code Frequency

				Research Questions			
Label	Theme	Sources	References	1	2	3	4
a	Convenience	8	20	111111		111	
b	Cost savings	13	43	111111	1111	1	11111111
c	Easy access	14	35	1111111111	11	11	111
d	Easy collaboration	8	21	111	11	111	11
e	Easy to use	9	26	11111111	1	1111	1
f	Education	3	9			11	11
g	Efficient	11	33	1111111	11111	11	1
h	File sharing	9	20	11	111	1	11111
i	Financial value	12	18				11111111111
j	Flexibility	8	18	111111			1111
k	Move to cloud	11	20	11	11	1111	11111
l	No security concern	9	12			111111111	
m	Opportunities	5	7		11111		
n	Positive experience	9	20	111111111		1	
o	Provider selection	5	10			11111	
p	Saves time	10	35	11111	11	111	1111
q	Security challenge	1	1			1	
r	Security concern	9	10			111111111	
s	Service continuity	1	7		1	1	
t	Subscription model	12	19				1111111111111

Note: 1 represent each participant whose response related a theme to a research question.